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 This file contains CAS Registry Numbers for easy and accurate
 substance identification.

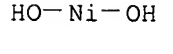
=> d l113 bib abs hitstr retable tot

L113 ANSWER 1 OF 47  HCAPLUS  COPYRIGHT 2007 ACS on STN
AN   2006:740229  HCAPLUS
DN   145:170741
TI   Active electrode composition with graphite additive
IN   Venkatesan, Srinivasan; Prasad, Binay; Laming,
     Kenneth; Aladjov, Boyko
PA   USA
SO   U.S. Pat. Appl. Publ., 6 pp., Cont.-in-part of U.S. Ser. No. 994,278.
     CODEN: USXXCO
DT   Patent
LA   English
FAN.CNT 2
     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
     ---------------     ----   --------    --------------------   --------
PI   US 2006166101        A1    20060727    US 2003-603675         20030625 <--
     US 2003104280        A1    20030605    US 2001-994278         20011127 <--
     US 6617072           B2    20030909
PRAI US 2001-994278       A2    20011127  <--
AB   An active composition for an electrode of an electrochem. device is
     disclosed.  The active composition comprises a nickel
     hydroxide material, a graphite material, and a
     polymeric binder.
IT   11113-74-9, Nickel hydroxide
     12054-48-7, Nickel hydroxide
     RL: DEV (Device component use); USES (Uses)
        (active electrode composition with graphite additive)
RN   11113-74-9  HCAPLUS
CN   Nickel hydroxide (9CI)  (CA INDEX NAME)

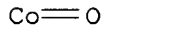
  Component    |       Ratio        |     Component
               |                    |  Registry Number
===============+====================+===================
HO             |         x          |       14280-30-9
```

Ni | x | 7440-02-0

RN 12054-48-7 HCAPLUS
CN Nickel hydroxide (Ni(OH)2) (8CI, 9CI) (CA INDEX NAME)



IT **1307-96-6, Cobalt** monoxide, uses **7440-48-4, Cobalt**, uses **7782-42-5, Graphite**, uses **105729-79-1, Isoprene-styrene** block **copolymer 106107-54-4, Butadiene-styrene** block **copolymer 110900-80-6, Butadiene-ethylene-styrene** block **copolymer**
RL: MOA (Modifier or additive use); USES (Uses)
(active **electrode** composition with **graphite** additive)
RN 1307-96-6 HCAPLUS
CN Cobalt oxide (CoO) (8CI, 9CI) (CA INDEX NAME)



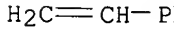
RN 7440-48-4 HCAPLUS
CN Cobalt (CA INDEX NAME)

RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

RN 105729-79-1 HCAPLUS
CN Benzene, ethenyl-, polymer with 2-methyl-1,3-butadiene, block (9CI) (CA INDEX NAME)

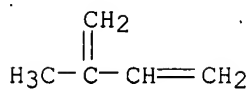
CM 1

CRN 100-42-5
CMF C8 H8



CM 2

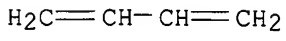
CRN 78-79-5
CMF C5 H8



RN 106107-54-4 HCAPLUS
CN Benzene, ethenyl-, polymer with 1,3-butadiene, block (9CI) (CA INDEX NAME)

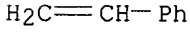
CM 1

CRN 106-99-0
CMF C4 H6



CM 2

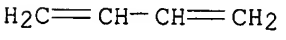
CRN 100-42-5
CMF C8 H8



RN 110900-80-6 HCAPLUS
CN Benzene, ethenyl-, polymer with 1,3-butadiene and ethene, block (9CI) (CA INDEX NAME)

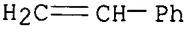
CM 1

CRN 106-99-0
CMF C4 H6



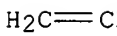
CM 2

CRN 100-42-5
CMF C8 H8



CM 3

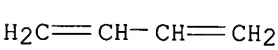
CRN 74-85-1
CMF C2 H4



IT **9003-55-8**
RL: MOA (Modifier or additive use); USES (Uses)
(**styrene-butadiene rubber**; active
electrode composition with **graphite** additive)
RN 9003-55-8 HCAPLUS
CN Benzene, ethenyl-, polymer with 1,3-butadiene (CA INDEX NAME)

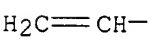
CM 1

CRN 106-99-0
CMF C4 H6



CM 2

CRN 100-42-5
CMF C8 H8



L113 ANSWER 2 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:513090 HCAPLUS
DN 141:57108
TI Active **electrode** composition with conductive **polymeric binder**
IN Ovshinsky, Stanford R.; **Aladjov, Boyko**; Tekkanat, Bora; **Venkatesan, Srinivasan**; Dhar, Subhash K.
PA USA
SO U.S. Pat. Appl. Publ., 16 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2004121228	A1	20040624	US 2002-329221	20021224
US 2004119194	A1	20040624	US 2003-411511	20030410
CA 2511334	A1	20040715	CA 2003-2511334	20031222
WO 2004059764	A1	20040715	WO 2003-US41191	20031222
W: AU, BR, CA, CN, IN, JP, KR, MX, NO, RU, SG, UA				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR				
AU 2003300343	A1	20040722	AU 2003-300343	20031222
EP 1576682	A1	20050921	EP 2003-814369	20031222
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, SK				
BR 2003017758	A	20051122	BR 2003-17758	20031222
JP 2006512729	T	20060413	JP 2004-564027	20031222
CN 1809937	A	20060726	CN 2003-80109954	20031222

PRAI US 2002-329221 A2 20021224
WO 2003-US41191 W 20031222

AB An active composition for an **electrode** of an electrochem. cell is disclosed. The active composition comprises an active **electrode** material and a conductive **polymer**. The electrochem. cell is preferably a **battery** cell or a **fuel cell**.

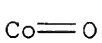
IT **11113-74-9, Nickel hydroxide**
RL: DEV (Device component use); USES (Uses)
(active **electrode** composition with conductive **polymeric binder**)

RN 11113-74-9 HCAPLUS
CN Nickel hydroxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	x	14280-30-9
Ni	x	7440-02-0

IT **1307-96-6, Cobalt oxide** coo, uses
7440-48-4, Cobalt, uses **7782-42-5, Graphite**, uses **9002-88-4, Polyethylene**
RL: MOA (Modifier or additive use); USES (Uses)
(active **electrode** composition with conductive **polymeric binder**)

RN 1307-96-6 HCAPLUS
CN Cobalt oxide (CoO) (8CI, 9CI) (CA INDEX NAME)



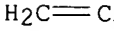
RN 7440-48-4 HCAPLUS
CN Cobalt (CA INDEX NAME)

RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

RN 9002-88-4 HCAPLUS
CN Ethene, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 74-85-1
CMF C2 H4



L113 ANSWER 3 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:874844 HCAPLUS
DN 139:340080
TI Very low emission hybrid electric vehicle incorporating an integrated propulsion system including a **fuel cell** and a high power **nickel** metal **hydride battery** pack
IN Ovshinsky, Stanford R.; Stempel, Robert C.
PA USA
SO U.S. Pat. Appl. Publ., 43 pp., Cont.-in-part of U.S. Ser. No. 315,669.
CODEN: USXXCO
DT **Patent**
LA English
FAN.CNT 16

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003207156	A1	20031106	US 2003-419486	20030421 <--
	US 6492056	B1	20021210	US 2000-687717	20001013 <--
	US 2003129459	A1	20030710	US 2002-315669	20021209 <--
PRAI	US 2000-687717	A2	20001013 <--		
	US 2002-315669	A2	20021209		
	US 2000-524116	A2	20000313 <--		

AB The invention concerns a very low emission hybrid elec. vehicle incorporating an integrated propulsion system which includes a **fuel cell**, a metal **hydride hydrogen storage** unit, an elec. motor, high specific power, high energy d. **nickel**-metal **hydride** (NiMH) **batteries**, and preferably a regenerative braking system. The **nickel**-metal **hydride battery** module preferably has a peak power d. in relation to energy d. as defined by: P >1.375-15 E, where P is >600 W/kg, where P is the peak power d. as measured in Watts/kg and E is the energy d. as measured in W-**h**/kg.

IT **9002-88-4, Polyethylene**
RL: DEV (Device component use); USES (Uses)
(grafted; very low emission hybrid elec. vehicle incorporating integrated propulsion system including **fuel cell** and high power **nickel** metal **hydride battery** pack)

RN 9002-88-4 HCAPLUS
CN Ethene, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 74-85-1
CMF C2 H4

$H_2C{=}CH_2$

IT **152320-33-7 180609-78-3 430470-92-1 430470-94-3 430470-95-4 430470-97-6 430470-99-8**
RL: DEV (Device component use); USES (Uses)
(very low emission hybrid elec. vehicle incorporating integrated propulsion system including **fuel cell** and high power **nickel** metal **hydride battery** pack)

RN 152320-33-7 HCAPLUS
CN Nickel alloy, base, Ni 28,Zr 27,V 15,Ti 12,Mn 7.2,Co 6.8,Cr 4.3 (9CI) (CA INDEX NAME)

Component Component Component

	Percent	Registry Number
Ni	28	7440-02-0
Zr	27	7440-67-7
V	15	7440-62-2
Ti	12	7440-32-6
Mn	7.2	7439-96-5
Co	6.8	7440-48-4
Cr	4.3	7440-47-3

RN 180609-78-3 HCAPLUS
CN Zirconium alloy, base, Zr 39,Ni 32,Mn 13,Ti 7.3,Co 4.5,Cr 4 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Zr	39	7440-67-7
Ni	32	7440-02-0
Mn	13	7439-96-5
Ti	7.3	7440-32-6
Co	4.5	7440-48-4
Cr	4	7440-47-3

RN 430470-92-1 HCAPLUS
CN Cobalt alloy, nonbase, Co,Fe,Mn,Sn,Ti (9CI) (CA INDEX NAME)

Component	Component Registry Number
Co	7440-48-4
Fe	7439-89-6
Mn	7439-96-5
Sn	7440-31-5
Ti	7440-32-6

RN 430470-94-3 HCAPLUS
CN Cobalt alloy, nonbase, Co,Fe,Mn,Sn,Zr (9CI) (CA INDEX NAME)

Component	Component Registry Number
Co	7440-48-4
Fe	7439-89-6
Mn	7439-96-5
Sn	7440-31-5
Zr	7440-67-7

RN 430470-95-4 HCAPLUS
CN Cobalt alloy, nonbase, Co,Fe,Mn,Sn,V (9CI) (CA INDEX NAME)

Component	Component Registry Number
Co	7440-48-4
Fe	7439-89-6
Mn	7439-96-5
Sn	7440-31-5
V	7440-62-2

RN 430470-97-6 HCAPLUS
CN Cobalt alloy, nonbase, Co,Fe,Mn,Ni,Sn (9CI) (CA INDEX NAME)

Component	Component Registry Number
Co	7440-48-4
Fe	7439-89-6
Mn	7439-96-5
Ni	7440-02-0
Sn	7440-31-5

RN 430470-99-8 HCAPLUS
CN Cobalt alloy, nonbase, Co,Cr,Fe,Mn,Sn (9CI) (CA INDEX NAME)

Component	Component Registry Number
Co	7440-48-4
Cr	7440-47-3
Fe	7439-89-6
Mn	7439-96-5
Sn	7440-31-5

IT **7782-42-5, Graphite**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(very low emission hybrid elec. vehicle incorporating integrated propulsion system including **fuel cell** and high power **nickel** metal **hydride battery** pack)
RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

IT **1333-74-0P, Hydrogen**, uses
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(very low emission hybrid elec. vehicle incorporating integrated propulsion system including **fuel cell** and high power **nickel** metal **hydride battery** pack)
RN 1333-74-0 HCAPLUS
CN Hydrogen (8CI, 9CI) (CA INDEX NAME)

H—H

L113 ANSWER 4 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:532193 HCAPLUS
DN 139:87841
TI Low emission hybrid electric vehicle incorporating an integrated propulsion system including a **fuel cell** and a high power **nickel** metal **hydride battery** pack
IN Ovshinsky, Stanford R.; Stempel, Robert C.
PA USA
SO U.S. Pat. Appl. Publ., 43 pp., Cont.-in-part of U.S. 6,492,056.

CODEN: USXXCO
DT **Patent**
LA English
FAN.CNT 16

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003129459	A1	20030710	US 2002-315669	20021209 <--
	US 6492056	B1	20021210	US 2000-687717	20001013 <--
	US 2003207156	A1	20031106	US 2003-419486	20030421 <--
PRAI	US 2000-687717	A2	20001013 <--		
	US 2000-524116	A2	20000313 <--		
	US 2002-315669	A2	20021209		

AB A very low emission hybrid elec. vehicle incorporates an integrated propulsion system which includes a **fuel cell**, a metal **hydride hydrogen storage** unit, an elec. motor, high specific power, high energy d. **nickel**-metal **hydride batteries**, and preferably a regenerative braking system. The **nickel**-metal **hydride battery** module preferably has a peak power d. in relation to energy d. as defined by: P >1375-15 E, where P is >600 W/kg, where P is the peak power d. as measured in W/kg and E is the energy d. as measured in W-**h**/kg.

IT **7782-42-5, Graphite,** uses
RL: MOA (Modifier or additive use); USES (Uses)
(**Ni**-plated. particles,; low emission hybrid elec. vehicle incorporating integrated propulsion system including **fuel cell** and high power **nickel** metal **hydride battery** pack)
RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

IT **12054-48-7, Nickel hydroxide**
RL: DEV (Device component use); USES (Uses)
(current collector; low emission hybrid elec. vehicle incorporating integrated propulsion system including **fuel cell** and high power **nickel** metal **hydride battery** pack)
RN 12054-48-7 HCAPLUS
CN Nickel hydroxide (Ni(OH)2) (8CI, 9CI) (CA INDEX NAME)

HO—Ni—OH

IT **9002-88-4, Polyethylene**
RL: DEV (Device component use); USES (Uses)
(grafted; low emission hybrid elec. vehicle incorporating integrated propulsion system including **fuel cell** and high power **nickel** metal **hydride battery** pack)
RN 9002-88-4 HCAPLUS
CN Ethene, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 74-85-1
CMF C2 H4

$H_2C{=}CH_2$

IT **11113-74-9, Nickel hydroxide**
152320-33-7 180609-78-3 476617-04-6
RL: DEV (Device component use); USES (Uses)
(low emission hybrid elec. vehicle incorporating integrated propulsion system including **fuel cell** and high power **nickel** metal **hydride battery** pack)
RN 11113-74-9 HCAPLUS
CN Nickel hydroxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	x	14280-30-9
Ni	x	7440-02-0

RN 152320-33-7 HCAPLUS
CN Nickel alloy, base, Ni 28,Zr 27,V 15,Ti 12,Mn 7.2,Co 6.8,Cr 4.3 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	28	7440-02-0
Zr	27	7440-67-7
V	15	7440-62-2
Ti	12	7440-32-6
Mn	7.2	7439-96-5
Co	6.8	7440-48-4
Cr	4.3	7440-47-3

RN 180609-78-3 HCAPLUS
CN Zirconium alloy, base, Zr 39,Ni 32,Mn 13,Ti 7.3,Co 4.5,Cr 4 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Zr	39	7440-67-7
Ni	32	7440-02-0
Mn	13	7439-96-5
Ti	7.3	7440-32-6
Co	4.5	7440-48-4
Cr	4	7440-47-3

RN 476617-04-6 HCAPLUS
CN Cobalt alloy, nonbase, Co,Cr,Fe,Mn,Ni,Sn,Ti,V,Zr (9CI) (CA INDEX NAME)

Component	Component Registry Number
Co	7440-48-4
Cr	7440-47-3
Fe	7439-89-6
Mn	7439-96-5
Ni	7440-02-0
Sn	7440-31-5

Ti	7440-32-6
V	7440-62-2
Zr	7440-67-7

L113 ANSWER 5 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:418013 HCAPLUS
DN 139:9295
TI **Primary** nonaqueous **battery** and manufacture of **cathode** active mass for the **battery**
IN Yamamoto, Kenta
PA Sony Corporation, Japan
SO PCT Int. Appl., 79 pp.
CODEN: PIXXD2
DT **Patent**
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003044883	A1	20030530	WO 2002-JP11967	20021115 <--
	W: CN, US				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR				
	JP 2003157860	A	20030530	JP 2001-357545	20011122 <--
	JP 2003157837	A	20030530	JP 2001-357548	20011122 <--
	JP 2003223889	A	20030808	JP 2002-69885	20020314 <--
	EP 1447868	A1	20040818	EP 2002-803504	20021115 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR, BG, CZ, EE, SK				
	US 2004101754	A1	20040527	US 2003-466615	20031215 <--
PRAI	JP 2001-357541	A	20011122 <--		
	JP 2001-357545	A	20011122 <--		
	JP 2001-357548	A	20011122 <--		
	WO 2002-JP11967	W	20021115		

AB The **battery** has a nearly spheroidal shaped β-type NiOOH based **cathode** active mass and an **anode** active mass containing a light metal which are disposed between an **anode** terminal and a **cathode** terminal and partitioned by a separator,and an nonaq. electrolyte solution; where the **cathode** mixture containing the **cathode** active mass, 5-30 % conductor, and 1-10 % **binder**; and the light metal is selected from Li, Li alloy, Mg, Na, K, Ca or Al. The **cathode** active mass is manufactured by preparing a 1st mixture by mixing NiSO4 or Ni(NO3)2 with a metal compound in an aqueous solution; preparing a metal solid solution containing **Ni hydroxide** by stirring and mixing the 1st mixture and a NH4+ donor with an alkaline aqueous solution; and chemical oxidation by mixing the **Ni hydroxide** solid solution in a mixture of the alkaline aqueous solution and an oxidizing agent.
IT **55070-72-9P, Nickel** oxide **hydroxide**
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(**cathode** active mass; manufacture of **cathode** active mass having metal solid solution containing Ni oxyhydroxides for **primary batteries**)
RN 55070-72-9 HCAPLUS
CN Nickel hydroxide oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	x	17778-80-2
HO	x	14280-30-9
Ni	x	7440-02-0

IT **7782-42-5P, Graphite,** uses
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(**cathode binder**; manufacture of Ni oxyhydroxide **cathodes** containing **binders** and conductors with controlled amount for **primary batteries**)
RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

IT **7440-48-4P, Cobalt,** uses **12016-80-7P, Cobalt oxide** hydroxide
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(manufacture of **cathode** active mass having metal solid solution containing Ni oxyhydroxides for **primary batteries**)
RN 7440-48-4 HCAPLUS
CN Cobalt (CA INDEX NAME)

Co

RN 12016-80-7 HCAPLUS
CN Cobalt hydroxide oxide (Co(OH)O) (9CI) (CA INDEX NAME)

HO—Co=O

IT **9002-88-4P, Polyethylene**
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(separator; structure of **primary batteries** containing Ni oxyhydroxide **cathodes** and Li metal **anodes**)
RN 9002-88-4 HCAPLUS
CN Ethene, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 74-85-1
CMF C2 H4

$H_2C=CH_2$

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Japan Storage Battery C	2001			JP 2001155726 A	HCAPLUS

Japan Storage Battery C|2001 | | |JP 2001250547 A |HCAPLUS

L113 ANSWER 6 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:116804 HCAPLUS
DN 138:173308
TI **Electrode**-active material for lithium secondary **battery**
IN Ishida, Yuko; Okahara, Kenji
PA Mitsubishi Chemical Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2003045424	A	20030214	JP 2001-227003	20010727 <--
PRAI JP 2001-227003		20010727 <--		

AB The **electrode**-active material comprises components A, B, and C, where A is a layer composite oxide of ≥2 of Li and transition metals (such as Ni, Mn, and **Co**); B is a carbonaceous material with BET sp. surface area (SSAB) 50-2000 m2/g; and C is a **binder**. Preferably, the composite oxide has a BET sp. surface area (SSAA) of 0.1-10 m2/g; 25 ≤(SSAB)/(SSAA)1/2 ≤900;. A can be represented by LivNiwMnxCoyQzO2, where 0.8 ≤v ≤1.2, 0 ≤w, x, and y ≤2, 0 ≤z ≤0.3, 0.8 ≤w + x + y + z ≤1.2, Q = Be, B, Mg, Al, Ca, Sc, Ti, V, Cr, Fe, Cu, Zn, or Ga. Preferably, 0.7 ≤w/x ≤9; and the **electrode**-active material comprises A 10-99, B 0.01-50, and C 0.1-80 weight%. The **battery** comprises pos. **electrode**, neg. **electrode**, and electrolyte.

IT **128975-24-6P**, Lithium manganese nickel oxide (Li2MnNiO4)
496861-40-6P
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**electrode**-active material containing; **electrode**-active material for lithium secondary **battery**)

RN 128975-24-6 HCAPLUS
CN Lithium manganese nickel oxide (Li2MnNiO4) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	4	17778-80-2
Ni	1	7440-02-0
Mn	1	7439-96-5
Li	2	7439-93-2

RN 496861-40-6 HCAPLUS
CN Aluminum beryllium boron calcium chromium cobalt copper gallium iron lithium magnesium manganese nickel scandium titanium vanadium zinc oxide ((Al,Be,B,Ca,Cr,Cu,Ga,Fe,Mg,Sc,Ti,V,Zn)0.3(Co,Mn,Ni)1.2Li0.8-1.2O2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Ca	0 - 0.3	7440-70-2
Zn	0 - 0.3	7440-66-6
V	0 - 0.3	7440-62-2

Ga	0 - 0.3	7440-55-3
Cu	0 - 0.3	7440-50-8
Co	0 - 1.2	7440-48-4
Cr	0 - 0.3	7440-47-3
B	0 - 0.3	7440-42-8
Be	0 - 0.3	7440-41-7
Ti	0 - 0.3	7440-32-6
Sc	0 - 0.3	7440-20-2
Ni	0 - 1.2	7440-02-0
Mn	0 - 1.2	7439-96-5
Mg	0 - 0.3	7439-95-4
Li	0.8 - 1.2	7439-93-2
Fe	0 - 0.3	7439-89-6
Al	0 - 0.3	7429-90-5

IT **346417-97-8P, Cobalt** lithium manganese nickel oxide (Co0.33LiMn0.33Ni0.33O2)
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**electrode**-active material containing; for manufacture of **electrode**-active material for lithium secondary **battery**)
RN 346417-97-8 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.33LiMn0.33Ni0.33O2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	0.33	7440-48-4
Ni	0.33	7440-02-0
Mn	0.33	7439-96-5
Li	1	7439-93-2

IT **7782-42-5P, Graphite**, uses
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(neg. **electrode**-active material containing; for manufacture of lithium secondary **battery**)
RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

IT **12054-48-7, Nickel hydroxide (Ni(OH)2) 21041-93-0, Cobalt** hydroxide (**Co**(OH)2)
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(starting material; for manufacture of **electrode**-active material for lithium secondary **battery**)
RN 12054-48-7 HCAPLUS
CN Nickel hydroxide (Ni(OH)2) (8CI, 9CI) (CA INDEX NAME)

HO—Ni—OH

RN 21041-93-0 HCAPLUS
CN Cobalt hydroxide (Co(OH)2) (6CI, 8CI, 9CI) (CA INDEX NAME)

HO—Co—OH

L113 ANSWER 7 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:40382 HCAPLUS
DN 138:76178
TI **Primary** sealed alkaline zinc **battery** with **nickel hydroxide cathode** containing **binder**
IN Toyota, Natsuki
PA Toshiba Battery Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2003017042	A	20030117	JP 2001-199757	20010629 <--
PRAI JP 2001-199757		20010629 <--		

AB The title **battery** is equipped with **Ni hydroxide**-type **cathode** active mass containing **graphite** and 0.1-2 parts (vs. 100 parts active mass) **binders** consisting of a hydrophobic **binder** and/or a hydrophilic **binder**. The active mass may contain **Ni hydroxide**-type compound particles coated with **Co** oxyhydroxide, Co2O3, CoO, **Co** hydroxide, Ni, and/or **Co**. The **battery** provides high capacity and production yield.
IT **9002-88-4, Polyethylene**
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(**binder**; hydrophobic **binder** and/or hydrophilic **binder** in **nickel hydroxide**-type **cathode** for alkaline zinc **battery**)
RN 9002-88-4 HCAPLUS
CN Ethene, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 74-85-1
CMF C2 H4

$H_2C{=}CH_2$

IT **1307-96-6, Cobalt** monoxide, uses **1308-04-9, Cobalt** trioxide **7440-48-4, Cobalt**, uses **12016-80-7, Cobalt** oxyhydroxide **12672-51-4, Cobalt** hydroxide
RL: DEV (Device component use); USES (Uses)

(coating; hydrophobic **binder** and/or hydrophilic **binder** in coated **nickel hydroxide**-type **cathode** for alkaline zinc **battery**)
RN 1307-96-6 HCAPLUS
CN Cobalt oxide (CoO) (8CI, 9CI) (CA INDEX NAME)

Co=O

RN 1308-04-9 HCAPLUS
CN Cobalt oxide (Co2O3) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 7440-48-4 HCAPLUS
CN Cobalt (CA INDEX NAME)

Co

RN 12016-80-7 HCAPLUS
CN Cobalt hydroxide oxide (Co(OH)O) (9CI) (CA INDEX NAME)

HO-Co=O

RN 12672-51-4 HCAPLUS
CN Cobalt hydroxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	x	14280-30-9
Co	x	7440-48-4

IT **7782-42-5, Graphite**, uses
RL: DEV (Device component use); USES (Uses)
(conductive agent; hydrophobic **binder** and/or hydrophilic **binder** in **nickel hydroxide**-type **cathode** for alkaline zinc **battery**)
RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

IT **55070-72-9, Nickel hydroxide** oxide
RL: DEV (Device component use); USES (Uses)
(hydrophobic **binder** and/or hydrophilic **binder** in **nickel hydroxide**-type **cathode** for alkaline zinc **battery**)
RN 55070-72-9 HCAPLUS
CN Nickel hydroxide oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O		x	17778-80-2
HO		x	14280-30-9
Ni		x	7440-02-0

L113 ANSWER 8 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:921830 HCAPLUS
DN 137:387145
TI Pasted **cathode** for rechargeable **battery** and process for its production
IN Weckesser, John J.; Balaban, Canan; Puglisi, Vincent J.; Czajkowski, Robert; Rampel, Guy; Dawn, L. Waggoner James; Wu, Chao Y.
PA Moltech Power Systems, USA
SO U.S., 16 pp., Cont.-in-part of U.S. 6,436,575.
CODEN: USXXAM
DT **Patent**
LA English
FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 6489058	B1	20021203	US 2000-438237	20000215 <--
US 6436575	B1	20020820	US 1998-191562	19981113 <--
PRAI US 1998-191562	A2	19981113 <--		

AB The present invention provides a pos. **electrode** for a rechargeable cell including a two-dimensional elec. conductive substrate supporting a coating comprising **nickel hydroxide** and a **binder**, preferably a **styrene-ethylene** /butylene-**styrene** triblock **copolymer binder**. The coating is formed by applying a paste to the two-dimensional substrate surface. The present invention also includes the cell made therefrom. The present invention further provides a method of producing this **electrode** including the steps of forming the paste and coating the paste onto the two-dimensional substrate. The capacity, midpoint voltage and power delivery of the coated **electrode** are comparable to or exceed those of traditional sintered and foam pos. **electrodes**.
IT **12054-48-7, Nickel hydroxide**
RL: DEV (Device component use); USES (Uses)
(pasted **cathode** for rechargeable **battery** and process for its production)
RN 12054-48-7 HCAPLUS
CN Nickel hydroxide (Ni(OH)2) (8CI, 9CI) (CA INDEX NAME)

HO—Ni—OH

IT **7440-48-4, Cobalt**, uses **7782-42-5, Graphite**, uses **11104-61-3, Cobalt oxide 12016-80-7, Cobalt** hydroxide oxide coooh **12672-51-4, Cobalt** hydroxide
RL: MOA (Modifier or additive use); USES (Uses)
(pasted **cathode** for rechargeable **battery** and process for its production)
RN 7440-48-4 HCAPLUS
CN Cobalt (CA INDEX NAME)

Co

RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

RN 11104-61-3 HCAPLUS
CN Cobalt oxide (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 12016-80-7 HCAPLUS
CN Cobalt hydroxide oxide (Co(OH)O) (9CI) (CA INDEX NAME)

HO—Co=O

RN 12672-51-4 HCAPLUS
CN Cobalt hydroxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	x	14280-30-9
Co	x	7440-48-4

IT **106107-54-4 694491-73-1**
RL: MOA (Modifier or additive use); USES (Uses)
(**styrene-butadiene rubber**, hydrogenated, block, triblock; pasted **cathode** for rechargeable **battery** and process for its production)
RN 106107-54-4 HCAPLUS
CN Benzene, ethenyl-, polymer with 1,3-butadiene, block (9CI) (CA INDEX NAME)

CM 1

CRN 106-99-0
CMF C4 H6

H_2C=CH—CH=CH_2

CM 2

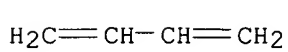
CRN 100-42-5
CMF C8 H8

H_2C=CH—Ph

RN 694491-73-1 HCAPLUS
CN Benzene, ethenyl-, polymer with 1,3-butadiene, triblock (9CI) (CA INDEX NAME)

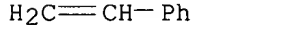
CM 1

CRN 106-99-0
CMF C4 H6



CM 2

CRN 100-42-5
CMF C8 H8



RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon	1988			JP 04-259753	HCAPLUS
Anon	1988			JP 63-170853	HCAPLUS
Anon	1988			JP 63-170853	HCAPLUS
Anon	1989			JP 01-248472	HCAPLUS
Anon	1989			JP 01-248472	HCAPLUS
Anon	1991			JP 03-165469	HCAPLUS
Anon	1991			JP 03-165469	HCAPLUS
Anon	1992			JP 04-259753	HCAPLUS
Anon	1997			EP 0801430	HCAPLUS
Anon	1998			EP 0827224	HCAPLUS
Anon		015		Patent Abstracts of	
Anon		017		Patent Abstracts of	
Anon		012		Patent Abstracts of	
Anon		013		Patent Abstracts of	
Baker	1975			US 3898099 A	HCAPLUS
Bando	1999			US 5965295 A	HCAPLUS
Dansui	2000			US 6033805 A	HCAPLUS
Hagspihl	1955			US 2724733 A	HCAPLUS
Harada	2000			US 6020089 A	HCAPLUS
Hayashida	1998			US 5798189 A	HCAPLUS
Kohno	1998			US 5853919 A	HCAPLUS
Matsumoto	1981			US 4251603 A	HCAPLUS
Matsumoto	1986			US 4582098 A	HCAPLUS
Miyasaka	1999			US 5882821 A	HCAPLUS
Pensabene	1974			US 3826684 A	HCAPLUS
Yamamura	1998			US 5804334 A	HCAPLUS
Yamamura	2000			US 6156455 A	HCAPLUS

L113 ANSWER 9 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:556004 HCAPLUS
DN 137:127542
TI Very low emission hybrid electric vehicle incorporating an integrated propulsion system including a **hydrogen** powered internal combustion engine and a high power **Ni**-MH **battery** pack
IN Ovshinsky, Stanford R.; Stempel, Robert C.
PA Ovonic Battery Co., Inc., USA
SO U.S. Pat. Appl. Publ., 23 pp., Cont.-in-part of U.S. Ser. No. 989,340.
CODEN: USXXCO

DT **Patent**
LA English
FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002098414	A1	20020725	US 2001-963864	20010925 <--
	US 6565836	B2	20030520		
	US 5851698	A	19981222	US 1997-792359	19970131 <--
	US 5856047	A	19990105	US 1997-792358	19970131 <--
	EP 1652713	A2	20060503	EP 2006-868	19981120 <--
	R: DE, ES, FR, GB, IT, FI				
	EP 1652714	A2	20060503	EP 2006-869	19981120 <--
	R: DE, ES, FR, GB, IT, FI				
	EP 1652715	A2	20060503	EP 2006-990	19981120 <--
	R: DE, ES, FR, GB, IT, FI				
	EP 954454	B1	20061108	EP 1998-958661	19981120 <--
	R: DE, ES, FI, FR, GB, IT				
	TW 494072	B	20020711	TW 1998-87119352	19981204 <--
	WO 2003026907	A2	20030403	WO 2002-US30119	20020923 <--
	WO 2003026907	A3	20040304		
	W: AU, BR, CA, CN, IN, JP, KR, MX, NO, RU, SG, UA, US				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR				
	AU 2002336753	A1	20030407	AU 2002-336753	20020923 <--
	US 2003157045	A1	20030821	US 2002-310220	20021205 <--
	US 6759034	B2	20040706		
PRAI	US 1997-792358	A2	19970131 <--		
	US 1997-792359	A2	19970131 <--		
	US 1997-979340	A2	19971124 <--		
	EP 1998-958661	A3	19981120 <--		
	WO 1998-US24793	W	19981120 <--		
	US 2001-963864	A	20010925 <--		
	WO 2002-US30119	W	20020923		

AB A very-low-emission hybrid elec. vehicle incorporates an integrated propulsion that comprises a **hydrogen**-powered internal combustion engine, a metal **hydride** unit for **storage** of **H2**, an elec. motor, high-specific-power high-energy-d. **nickel**-metal **hydride** (NiMH) **batteries**, and preferably a regenerative braking system. The **hydrogen**-powered internal-combustion engine uses **hydrogen** supplied from the **H2 storage** unit to provide either electricity (to recharge the **batteries**) or to propel the vehicle. Waste heat from the engine can be used to provide the required heat for releasing **hydrogen** from the **H2 storage** unit. The NiMH **batteries** have neg. **electrodes** with substrates to enhance the power delivery capability of the **battery** and to maintain maximum operating efficiency during charging and discharging cycling, while maintaining a combination of energy d. and power d. The **nickel**-metal **hydride battery** module preferably has a peak power d., P, in relation to energy d., E, as defined by: P > 1420-16E, in which P >600 W/kg and E is measured in Watt-hours/kg.

IT **7782-42-5, Graphite**, uses **152320-33-7** **444046-25-7**
RL: NUU (Other use, unclassified); USES (Uses)
(**battery anodes** containing; very-low-emission hybrid elec. vehicle incorporating an integrated propulsion system including a **hydrogen**-powered internal combustion engine and a high power **Ni**-MH **battery** pack)

RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

RN 152320-33-7 HCAPLUS
CN Nickel alloy, base, Ni 28,Zr 27,V 15,Ti 12,Mn 7.2,Co 6.8,Cr 4.3 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	28	7440-02-0
Zr	27	7440-67-7
V	15	7440-62-2
Ti	12	7440-32-6
Mn	7.2	7439-96-5
Co	6.8	7440-48-4
Cr	4.3	7440-47-3

RN 444046-25-7 HCAPLUS
CN Manganese alloy, base, Mn 40,Co 37,Cr 23 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Mn	40	7439-96-5
Co	37	7440-48-4
Cr	23	7440-47-3

IT **9002-88-4, Polyethylene**
RL: NUU (Other use, unclassified); USES (Uses)
(**battery** separators; very-low-emission hybrid elec. vehicle incorporating an integrated propulsion system including a **hydrogen**-powered internal combustion engine and a high power **Ni**-MH **battery** pack)
RN 9002-88-4 HCAPLUS
CN Ethene, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 74-85-1
CMF C2 H4

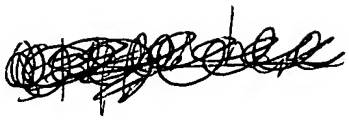
$H_2C{=}CH_2$

IT **1333-74-0, Hydrogen**, uses
RL: NUU (Other use, unclassified); USES (Uses)
(fuel; very-low-emission hybrid elec. vehicle incorporating an integrated propulsion system including a **hydrogen**-powered internal combustion engine and a high power **Ni**-MH **battery** pack)
RN 1333-74-0 HCAPLUS
CN Hydrogen (8CI, 9CI) (CA INDEX NAME)

H—H

IT **12054-48-7, Nickel hydroxide (Ni(OH)2)**
RL: NUU (Other use, unclassified); USES (Uses)
(rechargeable **battery cathodes** containing; very-low-emission hybrid elec. vehicle incorporating an integrated propulsion system including a **hydrogen**-powered internal combustion engine and a high power **Ni**-MH **battery** pack)
RN 12054-48-7 HCAPLUS
CN Nickel hydroxide (Ni(OH)2) (8CI, 9CI) (CA INDEX NAME)

HO—Ni—OH



L113 ANSWER 10 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:403821 HCAPLUS
DN 136:388543
TI **Hydrogen**-permeable **alloy** membrane for **hydride battery** applications
IN Buxbaum, Robert E.
PA USA
SO U.S., 7 pp.
CODEN: USXXAM
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6395405	B1	20020528	US 1999-436675	19991109 <--
	US 2002127426	A1	20020912	US 2002-145273	20020514 <--
	US 6576350	B2	20030610		
PRAI	US 1998-107627P	P	19981109 <--		
	US 1999-436675	A3	19991109 <--		

AB A **hydride battery electrode** is coated with palladium or a palladium **alloy** to improve **hydride storage** properties and recycle characteristics. A **hydrogen** purification membrane including a metallic substrate likewise has improved properties upon coating with palladium and a surface species of an alkali metal, alkaline earth element or alkaline earth cation. Novel metal **hydrogen** purification membranes include vanadium alloyed with at least 1 to 20 atomic% **nickel** and/or 1 to 20 atomic% cobalt and/or 1 to 20 atomic% palladium.
IT **1333-74-0P, Hydrogen,** uses
RL: PUR (Purification or recovery); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**hydrogen**-permeable **alloy** membrane for **hydride battery** applications)
RN 1333-74-0 HCAPLUS
CN Hydrogen (8CI, 9CI) (CA INDEX NAME)

H—H

IT **215308-19-3 428513-16-0**
RL: TEM (Technical or engineered material use); USES (Uses)

(**hydrogen**-permeable **alloy** membrane for **hydride battery** applications)

RN 215308-19-3 HCAPLUS
CN Nickel alloy, base, Ni 54,misch metal 32,Co 6.4,Mn 4.6,Al 2.3,Ti 0.6 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	54	7440-02-0
Misch metal	32	8049-20-5
Co	6.4	7440-48-4
Mn	4.6	7439-96-5
Al	2.3	7429-90-5
Ti	0.6	7440-32-6

RN 428513-16-0 HCAPLUS
CN Misch metal, alloy, misch metal 63,Co 12,Ti 11,Mn 9.1,Al 4.4 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Misch metal	63	8049-20-5
Co	12	7440-48-4
Ti	11	7440-32-6
Mn	9.1	7439-96-5
Al	4.4	7429-90-5

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Bugga	1999			US 5888665 A	HCAPLUS
Carden	1995			US 5405309 A	
Edlund	1993			US 5217506 A	HCAPLUS
Good	1994			US 5342283 A	
Hasebe	1998			US 5843372 A	HCAPLUS
Kubiatowicz	1982			US 4323055 A	HCAPLUS
Lawrence	1967			US 3351049 A	HCAPLUS
Lee	1998			US 5849430 A	
Lichtenberg	1998			US 5738953 A	HCAPLUS
Lichtenberg	1998			US 5738958 A	HCAPLUS
Liprie	1995			US 5395300 A	
Park	1998			US 5766676 A	HCAPLUS
Peachey	1998			US 5738708 A	HCAPLUS
Russell	1987			US 4702228 A	
Russell	1988			US 4784116 A	
Suthanthiran	1991			US 4994013 A	
Thompson	1999			US 5888669 A	HCAPLUS
Uemiya	1998			US 5798033 A	HCAPLUS
Venkatesan	1999			US 5856047 A	HCAPLUS
Yasuda	1998			US 5783334 A	HCAPLUS

L113 ANSWER 11 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:290706 HCAPLUS
DN 136:312576
TI Method for preparing **electrodes** for **Ni**/metal **hydride** secondary **batteries** using copper
IN Lee, Jai Young; Jang, Kuk Jin; Kim, Dong Myung; Yu, Ji Sang; Lee, Sang

Min; Lee, Ho
PA Korea Advanced Institute of Science and Technology, S. Korea
SO U.S., 17 pp.
CODEN: USXXAM
DT **Patent**
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 6372383	B1	20020416	US 2000-494596	20000131 <--
PRAI US 2000-494596		20000131 <--		

AB Disclosed is a method for preparing a high performance, neg. **electrode** for **Ni**/metal **hydride** cells. A Zr-based **hydrogen storage alloy**, a binder comprising a mixture of polytetrafluoroethylene and a thickening agent (hydroxypropylmethyl cellulose), and a current collector comprising carbon black and copper are slurried and molded into a paste-type **electrode**. In a closed type cell, the copper repetitively undergoes melting and deposition on the **electrode** during charging and discharging cycles, allowing the **electrode** to show a similar change in surface morphol. and electrochem. properties to that of a conventionally electroless plated **electrode**. Giving a contribution to the improvement in cell properties, including inner cell pressure, high rate dischargeability and energy d. per volume, the method can substitute conventional **alloy** surface modifying methods, such as electroless plating methods and other pre-treatment processes necessary for the preparation of **electrodes**, which are difficult to practice owing to the production of pollution of the environment and to requirement of addnl. procedures.

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Humphrey	1999			US 5922493 A	HCAPLUS
Komada	1999			US 5932369 A	HCAPLUS
Lee, J	1995		144	Department of Materi	
Ogura	2001			US 6171727 B1	HCAPLUS
Sakai, T	1991	172-1	1175	Journal of Less-Comm	
Sawa	2000			US 6030724 A	HCAPLUS
Sawa, H	1990	31	487	Materials Transactio	HCAPLUS
Yamano	1987			US 4636445 A	HCAPLUS

L113 ANSWER 12 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:763380 HCAPLUS
DN 135:320491
TI Rechargeable electrochemical energy storage devices such as **batteries** and capacitors of high specific power
IN Mirzoev, Rustam Aminovich; Styrov, Mikhail Ivanovich; Stepanova, Natalya Lliinichna; Maiorov, Alexandr Ivanovich
PA Russia
SO PCT Int. Appl., 41 pp.
CODEN: PIXXD2
DT **Patent**
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2001078172	A2	20011018	WO 2001-RU147	20010409 <--
WO 2001078172	A3	20020725		

W: AT, AU, BA, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB,

HR, HU, ID, IL, IN, IS, JP, KR, LK, LT, LU, LV, MX, NO, NZ, PL,
PT, RO, SE, SG, SI, SK, TR, UA, US, VN, YU, ZA
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,
PT, SE, TR

	RU 2170468	C1	20010710	RU 2000-108992	20000410 <--
	AU 2001050708	A5	20011023	AU 2001-50708	20010409 <--
	DE 10196060	T0	20030522	DE 2001-10196060	20010409 <--
	US 2003113629	A1	20030619	US 2002-240686	20021003 <--
	US 6844111	B2	20050118		
PRAI	RU 2000-108992	A	20000410 <--		
	WO 2001-RU147	W	20010409 <--		

AB Pos. and neg. **electrodes** for electrochem. energy **storage** device of high specific power according to the invention comprise active element interacting with aqueous alkaline electrolyte in the process of redox charge-discharge reactions made of electron-conductive electrolytic **alloy** having composition M(1-x-y)OxHy, where M for pos. **electrode** is **nickel** or **nickel**-based **alloy**, M for neg. **electrode** - a metal out of the group: iron, **nickel**, cobalt or an **alloy** on the basis of a metal out of this group, x is atomic fraction of absorbed oxygen in the electrolytic **alloy** being within the limits of $0.01 \leq x \leq 0.4$, for pos. **electrode** preferably in the limits of $0.05 \leq y \leq 0.4$, y is atomic fraction of absorbed **hydrogen** in the electrolytic **alloy** being within the limits of $0.01 \leq y \leq 0.4$, for neg. **electrode** preferably in the limits of $0.05 \leq y \leq 0.4$, the electrolytic **alloy** functioning simultaneously as current-carrying collector and as active material. Electrochem. energy **storage** devices of high specific power according to three embodiments of the invention comprise at least one neg. and one pos. **electrodes** submerged in aqueous alkaline electrolyte and divided by a separator - a layer of ion-conductive but nonelectron-conductive material. Enhancement of service life owing to increase in number of recharge cycles under conditions of elimination of ecol. harmful cadmium is the tech. result achieved by the invention.

IT **367491-20-1**, Cobalt **hydrogen** oxide **367491-21-2**
, **Nickel hydride** oxide (Ni0.67H0.2O0.13)
367491-22-3, **Nickel hydride** oxide
(Ni0.63H0.2O0.15)
RL: DEV (Device component use); USES (Uses)
(rechargeable electrochem. energy **storage** devices such as **batteries** and capacitors of high specific power)

RN 367491-20-1 HCAPLUS
CN Cobalt hydrogen oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
H	x	12385-13-6
Co	x	7440-48-4

RN 367491-21-2 HCAPLUS
CN Nickel hydride oxide (Ni0.67H0.2O0.13) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	0.13	17778-80-2
H	0.2	12385-13-6
Ni	0.67	7440-02-0

RN 367491-22-3 HCAPLUS
CN Nickel hydride oxide (Ni0.63H0.22O0.15) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	0.15	17778-80-2
H	0.22	12385-13-6
Ni	0.63	7440-02-0

IT **367491-23-4P**, Cobalt **nickel hydride** oxide (Co0.1Ni0.52H0.23O0.15) **367491-25-6P**, Cobalt **nickel hydride** oxide (Co0.54Ni0.15H0.18O0.13) **367491-28-9P**, **Nickel hydride** oxide (Ni0.65H0.17O0.18) **367491-29-0P**, Cobalt **nickel hydride** oxide (Co0.1Ni0.55H0.16O0.19) **367491-30-3P**, Cobalt **nickel** zinc **hydride** oxide (Co0.09Ni0.52Zn0.02H0.17O0.2)
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(rechargeable electrochem. energy storage devices such as **batteries** and capacitors of high specific power)
RN 367491-23-4 HCAPLUS
CN Cobalt nickel hydride oxide (Co0.1Ni0.52H0.23O0.15) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	0.15	17778-80-2
H	0.23	12385-13-6
Co	0.1	7440-48-4
Ni	0.52	7440-02-0

RN 367491-25-6 HCAPLUS
CN Cobalt nickel hydride oxide (Co0.54Ni0.15H0.18O0.13) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	0.13	17778-80-2
H	0.18	12385-13-6
Co	0.54	7440-48-4
Ni	0.15	7440-02-0

RN 367491-28-9 HCAPLUS
CN Nickel hydride oxide (Ni0.65H0.17O0.18) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	0.18	17778-80-2
H	0.17	12385-13-6
Ni	0.65	7440-02-0

RN 367491-29-0 HCAPLUS
CN Cobalt nickel hydride oxide (Co0.1Ni0.55H0.16O0.19) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	0.19	17778-80-2
H	0.16	12385-13-6
Co	0.1	7440-48-4
Ni	0.55	7440-02-0

RN 367491-30-3 HCAPLUS
CN Cobalt nickel zinc hydride oxide (Co0.09Ni0.52Zn0.02H0.17O0.2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	0.2	17778-80-2
H	0.17	12385-13-6
Zn	0.02	7440-66-6
Co	0.09	7440-48-4
Ni	0.52	7440-02-0

L113 ANSWER 13 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:558588 HCAPLUS
DN 135:259761
TI Preparation of a **nickel**-metal **hydride** (**Ni**-MH) rechargeable **battery** and its application to a solar vehicle
AU Hoshino, H.; Uchida, H.; Kimura, H.; Takamoto, K.; Hiraoka, K.; Matsumae, Y.
CS School of Engineering, Tokai University, Hiratsuka-City, Kanagawa, 259-1292, Japan
SO International Journal of Hydrogen Energy (**2001**), 26(8), 873-877
CODEN: IJHEDX; ISSN: 0360-3199
PB Elsevier Science Ltd.
DT Journal
LA English
AB This paper reports the preparation of a **nickel**-metal **hydride** (**Ni**-MH) rechargeable **battery** with a high capacity of 96 V-14 A-**h** and a high energy d. of 1.4 kW-**h**. The **anode** was prepared using a rare earth-based MmNi5-type **hydrogen storage alloy** (Mm = misch metal) and **graphite** as a conductive material. The prepared **Ni**-MH **battery** was installed into a solar vehicle. The data obtained from a three-day long world solar car rally yielded high discharge-to-charge coulomb efficiency (76%) and solar-to-elec. energy conversion efficiency (60%) in spite of severe rally conditions.

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Hoshino, H	1998	23	22	J Hydrogen Energy Sy	HCAPLUS
Hoshino, H	1999	24	2	J Hydrogen Energy Sy	HCAPLUS
Huang, Y	1989	164	1398	Z Phys Chem NF	
Lang, N	1985	150	24	Surf Sci	HCAPLUS
Uchida, H				IAHE conference Int	
Uchida, H	1995	231	684	J Alloys Compounds	HCAPLUS
Uchida, H	1997	525	253	J Alloys Compounds	
Uchida, H				J Alloys Compounds i	
Uchida, H	1984	101	459	J Less-Common Met	HCAPLUS
Uchida, H	1991	983	172	J Less-Common Met	
Uchida, H	1994	183	303	Z Phys Chm	HCAPLUS

L113 ANSWER 14 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:513996 HCAPLUS
DN 135:69708
TI Electrochemical super-capacitor and its manufacture
IN Xie, Jingying; Wang, Xiaofeng; Zhang, Quansheng; Liu, Qingguo
PA Shanghai Institute of Metallurgy, Chinese Academy of Sciences, Peop. Rep. China
SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 10 pp.
CODEN: CNXXEV
DT **Patent**
LA Chinese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI CN 1277444	A	20001220	CN 2000-119499	20000721 <--
PRAI CN 2000-119499		20000721 <--		

AB A super-capacitor consists of **anode**, **cathode**, electrolyte containing LiOH, KOH, and/or NaOH, and insulating membrane of glass fiber or **polymer** film. The **anode** is prepared by mixing **Ni(OH)2**, 10-30% conductor, and 5-10% **binder**, coating on current collector, pressing, drying, and cutting. The **anode** may also be prepared by electrolysis in Ni(NO3)2 solution by using Ni as **anode** and porous substrate as **cathode**, washing, drying, and charging and discharging in NaOH solution, repeating the washing, drying, and charging and discharging processes for several times, and sintering at 250-500°. The **cathode** is prepared by mixing porous C material, 10-30% conductor, and 5-10% **binder**, coating on current collector, pressing, drying, and cutting.

IT **1308-04-9**, **Cobalt oxide** (Co2O3)
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(additives in **Ni(OH)2**; electrochem. super-capacitor and manufacture)
RN 1308-04-9 HCAPLUS
CN Cobalt oxide (Co2O3) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **7782-42-5**, **Graphite**, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(elec. conductor; electrochem. super-capacitor and manufacture)
RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

IT **11113-74-9P**, **Nickel hydroxide**
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(electrochem. super-capacitor and manufacture)
RN 11113-74-9 HCAPLUS
CN Nickel hydroxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	x	14280-30-9
Ni	x	7440-02-0

L113 ANSWER 15 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:483340 HCAPLUS
DN 135:259659
TI A paste type negative **electrode** using a MmNi5 based **hydrogen storage alloy** for a **nickel** -metal **hydride** (**Ni**-MH) **battery**
AU Uchida, H.; Matsumoto, T.; Watanabe, S.; Kobayashi, K.; Hoshino, H.
CS School of Engineering, Department of Applied Physics, Tokai University, Hiratsuka-City, Kanagawa, 259-1292, Japan
SO International Journal of Hydrogen Energy (**2001**), 26(7), 735-739
CODEN: IJHEDX; ISSN: 0360-3199
PB Elsevier Science Ltd.
DT Journal
LA English
AB Different conducting materials (**nickel**, copper, cobalt, **graphite**) were mixed with a MmNi5 type **hydrogen storage alloy**, and neg. **electrodes** for a **nickel**-metal **hydride** (**Ni**-MH) rechargeable **battery** were prepared and examined with respect to the discharge capacity of the **electrodes**. The change in the discharge capacity of the **electrodes** with different conducting materials was measured as a function of the number of electrochem. charge and discharge cycles. From the measurements, the **electrodes** with cobalt and **graphite** yielded much higher discharge capacities than those with **nickel** or cobalt. From a comparative discharge measurements for an **electrode** composed of only cobalt powder without the **alloy** and an **electrode** with a mixture of cobalt and the **alloy**, an appreciable contribution of the cobalt surface to the enhancement of charge and discharge capacities was found.
IT **7440-48-4**, Cobalt, processes **7782-42-5**, **Graphite**, processes
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(paste type cobalt-**graphite** neg. **electrode** using MmNi5 based **hydrogen storage alloy** for **nickel**-metal **hydride** (**Ni**-MH) **battery**)
RN 7440-48-4 HCAPLUS
CN Cobalt (CA INDEX NAME)

Co

RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Hoshino, H				Int J Hydrogen Energ	
Hoshino, H	1999	24	2	J Hydrogen Energy Sy	HCAPLUS
Huang, Y	1989	163	149	Z Phys Chem N F	

Ogawa, H	1988		393	Proceedings of the 1	
Sakai, T	1990	161	193	J Less-Common Met	HCAPLUS
Uchida, H	1995	231	679	J Alloys Compounds	HCAPLUS
Uchida, H	1995	231	684	J Alloys Compounds	HCAPLUS
Uchida, H	1997	235	253	J Alloys Compounds	
Uchida, H	1994	183	303	Z Phys Chem	HCAPLUS

L113 ANSWER 16 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:453339 HCAPLUS
DN 135:48629
TI A **hydrogen** cooled **hydride storage** unit incorporating porous encapsulant material to prevent **alloy** entrainment
IN Stetson, Ned T.; Holland, Arthur; Stephenson, Trevor
PA Energy Conversion Devices, Inc., USA; Shell Internationale Research Maatschappij BV
SO PCT Int. Appl., 33 pp.
CODEN: PIXXD2
DT **Patent**
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2001044737	A1	20010621	WO 2000-US34047	20001215 <--
W: AU, BR, CA, CN, IN, JP, KR, MX, NO, RU, SG, UA				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
US 6823931	B1	20041130	US 1999-466579	19991217 <--
CA 2392142	A1	20010621	CA 2000-2392142	20001215 <--
EP 1238238	A1	20020911	EP 2000-988083	20001215 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
JP 2003521640	T	20030715	JP 2001-545788	20001215 <--
TW 505774	B	20021011	TW 2000-89127299	20001218 <--
PRAI US 1999-466579	A	19991217 <--		
WO 2000-US34047	W	20001215 <--		

AB A **H** cooled **H** storage element comprises: a **H** storage **alloy**, **H** flow channels provided within the **alloy**, the flow channels providing pathways through the **H** storage **alloy** to allow for high speed **H** flow, a portion of the **H** being stored within the storage material and releasing heat of **hydride** formation and the remainder of the **H** flowing through the **H** storage material at a sufficient mass flow rate to remove the heat of **hydride** formation. A porous encapsulant surrounding the **H** storage **alloy** prevents the **alloy** from being entrained into the high speed **H** gas flow.
IT **1333-74-0, Hydrogen**, uses
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(**hydrogen** cooled **hydride storage** unit incorporating porous encapsulant material to prevent **alloy** entrainment)
RN 1333-74-0 HCAPLUS
CN Hydrogen (8CI, 9CI) (CA INDEX NAME)

H—H

IT **7782-42-5, Graphite**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**hydrogen** cooled **hydride storage** unit
incorporating porous encapsulant material to prevent **alloy**
entrainment)
RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Kashima	1989			JP 01-38593 A	
Rockenfeller	1992			US 5165247 A	
Sapru	1998			US 5778972 A	HCAPLUS

L113 ANSWER 17 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:453334 HCAPLUS
DN 135:48628
TI A **hydrogen** cooled **hydride storage** unit
IN Stetson, Ned T.; Ramachandran, Subramanian
PA Energy Conversion Devices, Inc., USA
SO PCT Int. Appl., 29 pp.
CODEN: PIXXD2
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001044713	A1	20010621	WO 2000-US34048	20001215 <--
	W: AU, BR, CA, CN, IN, JP, KR, MX, NO, RU, UA				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
	CA 2392141	A1	20010621	CA 2000-2392141	20001215 <--
	EP 1240457	A1	20020918	EP 2000-988084	20001215 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
	JP 2003524122	T	20030812	JP 2001-545770	20001215 <--
	TW 463023	B	20011111	TW 2000-89127298	20001221 <--
	US 2001039803	A1	20011115	US 2001-892719	20010628 <--
PRAI	US 1999-465904	A	19991217 <--		
	WO 2000-US34048	W	20001215 <--		

AB A **hydrogen** gas cooled **hydrogen storage** element includes a **hydrogen storage alloy** material in which **hydrogen** flow channels are provided. The flow channels provide pathways through the **hydrogen storage** material to allow for high speed **hydrogen** gas flow. A portion of the high speed **hydrogen** flow is **stored** within the **storage** material which releases its heat of **hydride** formation. The remainder of the **hydrogen** flows through the **hydrogen storage** material at a sufficient mass flow rate to remove the heat of **hydride** formation. The unit includes a casing, which houses the **storage** coil. The **storage** coil is composed of a spirally wound **hydrogen storage alloy** belt. The flow channel material allows for flow of the high flow rate **hydrogen** through the **storage** unit.

IT **1333-74-0, Hydrogen**, uses
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(**hydrogen** cooled **hydride storage** unit)
RN 1333-74-0 HCAPLUS
CN Hydrogen (8CI, 9CI) (CA INDEX NAME)

H—H

IT **7782-42-5, Graphite**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**hydrogen** cooled **hydride storage** unit)
RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Sapru	1998			US 5778972 A	HCAPLUS
Woolley	1980			US 4185979 A	HCAPLUS
Woolley	1980			US 4187092 A	

L113 ANSWER 18 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:410002 HCAPLUS
DN 135:229248
TI Effect of **nickel**, cobalt or **graphite** addition on the electrochemical properties of an AB5 **hydrogen storage alloy** and their mechanism
AU Yuan, A.; Xu, N.
CS Shanghai Institute of Metallurgy, Chinese Academy of Sciences, Shanghai, 200050, Peop. Rep. China
SO Journal of Alloys and Compounds (**2001**), 322(1-2), 269-275
CODEN: JALCEU; ISSN: 0925-8388
PB Elsevier Science S.A.
DT Journal
LA English
AB The effects of the addition of cobalt powder, **nickel** powder and **graphite** to metal **hydride** (MH) **electrode** have been investigated by using the constant current charge/discharge test. Electrochem. impedance spectroscopy, linear polarization and cyclic voltammetry methods were used to study the mechanism for the property variation. Cobalt powder addition can increase the MH **electrode** capacity at lower charge/discharge rates, but decrease the capacity at higher charge/discharge rates. **Nickel** powder addition is beneficial to the capacity and rate-discharge-ability due to the improvement of elec. conductance and electrocatalytic activity of the MH **electrode**. The performance of the MH **electrode** is slightly improved with the addition of **graphite**. The lower-frequency semicircle observed in the Nyquist plot is suggested to be the reaction impedance of the MH **electrode**.
IT **7440-48-4**, Cobalt, processes **7782-42-5, Graphite**, processes **189453-81-4**
RL: PEP (Physical, engineering or chemical process); PRP (Properties);

PROC (Process)
(effect of **nickel**, cobalt or **graphite** addition on the electrochem. properties of an AB5 **hydrogen storage alloy** and their mechanism)
RN 7440-48-4 HCAPLUS
CN Cobalt (CA INDEX NAME)

Co

RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

RN 189453-81-4 HCAPLUS
CN Nickel alloy, base, Ni 50,misch metal 33,Co 11,Mn 5.2,Al 1.3 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	50	7440-02-0
Misch metal	33	8049-20-5
Co	11	7440-48-4
Mn	5.2	7439-96-5
Al	1.3	7429-90-5

IT **1333-74-0**, **Hydrogen**, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(**storage**,; effect of **nickel**, cobalt or **graphite** addition on the electrochem. properties of an AB5 **hydrogen storage alloy** and their mechanism)
RN 1333-74-0 HCAPLUS
CN Hydrogen (8CI, 9CI) (CA INDEX NAME)

H—H

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Bard, A	1980			Electrochemical Meth	
Chen, J	1998	70	110	J Power Sources	HCAPLUS
Durairajan, A	1999	83	114	J Power Sources	HCAPLUS
Haran, B	1998	145	3000	J Electrochem Soc	HCAPLUS
Ikoma, M	1999	284	92	J Alloys Comp	HCAPLUS
Iwakura, C	1995	40	561	Electrochim Acta	HCAPLUS
Iwakura, C	1993	192	152	J Alloys Comp	HCAPLUS
Koura, N	1998	66	1135	Denki Kagaku	HCAPLUS
Kuriyama, N	1993	192	161	J Alloys Comp	HCAPLUS
Kuriyama, N	1992	139	L72	J Electrochem Soc	HCAPLUS
Matsuoka, M	1993	38	659	Electrochim Acta	HCAPLUS
Ticianelli, E	1999	146	3582	J Electrochem Soc	HCAPLUS
Wang, C	1998	145	1801	J Electrochem Soc	HCAPLUS

Yu, J	1999	146	4366	J Electrochem Soc	HCAPLUS
Zhang, W	1995	142	2935	J Electrochem Soc	HCAPLUS
Zheng, G	1999	29	361	J Appl Electrochem	HCAPLUS
Zheng, G	1996	143	435	J Electrochem Soc	HCAPLUS
Zheng, G	1996	143	834	J Electrochem Soc	HCAPLUS
Zuttel, A	1994	206	31	J Alloys Comp	

L113 ANSWER 19 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:86514 HCAPLUS
DN 134:225012
TI Influence of additives and contents of oxides in the surface of misch metal **hydrogen storage alloy** on the performance of **Ni**-MH **battery**
AU Xia, Bao-jia; Yin, Ge-ping; Shi, Peng-fei; Cheng, Xin-qun
CS Department of Applied Chemistry, Harbin Institute of Technology, Harbin Heilongjiang, 150001, Peop. Rep. China
SO Dianyuan Jishu (**2000**), 24(6), 322-323, 347
CODEN: DIJIFT; ISSN: 1002-087X
PB Dianyuan Jishu Bianjibu
DT Journal
LA Chinese
AB Different contents of oxides in the surface of MmNi3.55Co0.75Mn0.4Al0.3 were prepared through several methods, and the effects on the performance of MH **electrode** and **Ni**-MH **battery** were studied by the charge-discharge tests and the measure of internal pressure of **battery** during charge/discharge and shelving. The results show that the lower the content of oxide in the surface of **alloy**, the higher are mass specific capacities of the **alloy**, the better initial activation of neg. **electrodes**, the lower working potential of the **electrodes**, and the lower internal pressure of **Ni**-MH **batteries**. The internal pressure can be further lowered by adding 1% acetylene black, on which a catalyst is electroless plated, to the MH **electrodes**.
IT **181147-99-9**
RL: DEV (Device component use); USES (Uses)
(influence of additives and contents of oxides in surface of misch metal **hydrogen storage alloy** on performance of **Ni**-metal **hydride battery**)
RN 181147-99-9 HCAPLUS
CN Nickel alloy, base, Ni 49,misch metal 33,Co 10,Mn 5.2,Al 1.9 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	49	7440-02-0
Misch metal	33	8049-20-5
Co	10	7440-48-4
Mn	5.2	7439-96-5
Al	1.9	7429-90-5

L113 ANSWER 20 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:891626 HCAPLUS
DN 134:34347
TI Apparatus and method for preparing oxygen by using air **cathode**
IN Li, Zhenya; Liu, Zhihui; Chen, Yanying
PA Peop. Rep. China
SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 9 pp.
CODEN: CNXXEV

DT **Patent**
LA Chinese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CN 1249361	A	20000405	CN 1999-119555	19990903 <--
PRAI	CN 1999-119555		19990903 <--		

AB The apparatus consists of air **cathode**, inert **anode**, **cathode** column, **anode** column, shell, gas-liquid separator consisting of porous gas-liquid separating plate, hydrophobic gas-liquid separating membrane, and O2 outlet, and return pipe. The hydrophobic gas-liquid separating membrane is prepared by mixing PTFE and acetylene black by a ratio of 6-8:2-4, and mixing with 30% (NH4)2CO3 or urea. The porous gas-liquid separating plate is prepared from porous ABS plastic plate, plastics, **rubber**, or metal material. The air **cathode** consists of waterproof membrane, current collection grid, waterproof membrane, and catalytic membrane set in series. The waterproof membrane is prepared by mixing PTFE and acetylene black at 4-6:4-6, and mixing with 30% (NH4)2CO3 or urea; the current collection grid is Cu grid, brass grid, or C fiber grid; the catalytic membrane is a mixture of PTFE and activated C at a ratio of 5-25:75-95, and the catalyst in the catalytic membrane is the oxide of Mn, **Co**, or **Co**-Mn in alkali or neutral electrolyte, and is Pt in acid electrolyte. The inert **anode** for alkali or neutral electrolyte is foamed Ni, porous **graphite**, stainless steel mesh, Pt deposited C steel, C fiber, or **Ni(OH)2** or La-Ni oxide composite deposited foamed Ni; that for acid electrolyte is porous **graphite**, Pt-deposited C steel, PbO2, C fiber, or Pt-deposited Ni mesh. The alkali electrolyte is the solution of NaOH, KOH, K2CO3, KHCO3, or NaHCO3; the neutral electrolyte is the solution of Na2SO4, K2SO4, KNO3, NaNO3, KClO4, or NaClO4; the acid electrolyte is the solution of H2SO4, HNO3, or H3PO4. O2 is prepared by using the apparatus at bath voltage of 0.5-2.5 V and c.d. of <800 mA cm-2.

IT **11104-61-3, Cobalt oxide**
RL: CAT (Catalyst use); USES (Uses)
(apparatus and method for preparing oxygen by using air **cathode**)
RN 11104-61-3 HCAPLUS
CN Cobalt oxide (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **7782-42-5, Graphite**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(electrolyte; apparatus and method for preparing oxygen by using air **cathode**)
RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

IT **12054-48-7, Nickel hydroxide**
RL: TEM (Technical or engineered material use); USES (Uses)
(inert **anode**; apparatus and method for preparing oxygen by using air **cathode**)
RN 12054-48-7 HCAPLUS
CN Nickel hydroxide (Ni(OH)2) (8CI, 9CI) (CA INDEX NAME)

HO—Ni—OH

L113 ANSWER 21 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:608511 HCAPLUS
DN 133:196018
TI **Nickel**-metal **hydride** secondary **battery**
IN Kitayama, Hiroshi; Hayashida, Hirotaka; Yamamoto, Masaaki; Bando, Naomi; Miyamoto, Kunihiko; Suzuki, Hideharu
PA Toshiba Battery Co., Ltd., Japan; K. K. Toshiba
SO Eur. Pat. Appl., 40 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1032067	A2	20000830	EP 2000-103378	20000223 <--
	EP 1032067	A3	20020313		
	R: DE, FR, GB, SI, LT, LV, RO				
	JP 2001217000	A	20010810	JP 2000-32149	20000209 <--
	US 6399247	B1	20020604	US 2000-513890	20000225 <--
	TW 492206	B	20020621	TW 2000-89103529	20000225 <--
	CN 1268782	A	20001004	CN 2000-108386	20000325 <--
PRAI	JP 1999-49412	A	19990226 <--		
	JP 1999-238458	A	19990825 <--		
	JP 1999-333276	A	19991124 <--		
	JP 2000-32149	A	20000209 <--		

AB A **nickel**-metal **hydride** secondary **battery** comprising **electrode** group comprising pos. **electrode** comprised mainly of **nickel hydroxide**, neg. **electrode** comprised mainly of a **hydrogen storage alloy**, and separator being disposed between the pos. **electrode** and the neg. **electrode**, wherein the **electrode** group is sealed in **battery** casing, together with an alkali electrolyte liquid, wherein, in the **battery**, a W element and an Na element are present simultaneously. The **nickel**-metal **hydride** secondary **battery** of the present invention is advantageous not only in that it exhibits high utilization of the active material and excellent self-discharge characteristics in a high temperature **storage** as well as high charging efficiency in a high temperature environment, but also in that it has excellent large current discharge characteristics.

IT **11113-74-9, Nickel hydroxide**
289054-29-1
RL: DEV (Device component use); USES (Uses)
(**nickel**-metal **hydride** secondary **battery**)

RN 11113-74-9 HCAPLUS
CN Nickel hydroxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	x	14280-30-9
Ni	x	7440-02-0

RN 289054-29-1 HCAPLUS

CN Misch metal, alloy, misch metal 66,Co 11,Ni 11,Mn 7.8,Al 3.8 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Misch metal	66	8049-20-5
Co	11	7440-48-4
Ni	11	7440-02-0
Mn	7.8	7439-96-5
Al	3.8	7429-90-5

IT **1307-96-6**, Cobalt monoxide, uses **7440-48-4**, Cobalt, uses **12672-51-4**, Cobalt hydroxide
RL: MOA (Modifier or additive use); USES (Uses)
(**nickel**-metal **hydride** secondary **battery**)
RN 1307-96-6 HCAPLUS
CN Cobalt oxide (CoO) (8CI, 9CI) (CA INDEX NAME)

Co═O

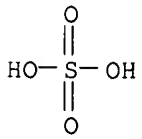
RN 7440-48-4 HCAPLUS
CN Cobalt (CA INDEX NAME)

Co

RN 12672-51-4 HCAPLUS
CN Cobalt hydroxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	x	14280-30-9
Co	x	7440-48-4

IT **10124-43-3**, Cobalt sulfate
RL: RCT (Reactant); RACT (Reactant or reagent)
(**nickel**-metal **hydride** secondary **battery**)
RN 10124-43-3 HCAPLUS
CN Sulfuric acid, cobalt(2+) salt (1:1) (8CI, 9CI) (CA INDEX NAME)



● Co(II)

L113 ANSWER 22 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:592961 HCAPLUS

DN 133:180356
TI Electrically conductive, freestanding microporous **polymer** sheet
IN Emanuel, James; Young, James; Pekala, Richard W.
PA Amtek Research International Llc, USA
SO PCT Int. Appl., 49 pp.
CODEN: PIXXD2
DT **Patent**
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000049669	A2	20000824	WO 2000-US4204	20000218 <--
	WO 2000049669	A3	20010215		
	W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW				
	RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	CA 2370524	A1	20000824	CA 2000-2370524	20000218 <--
	EP 1161774	A2	20011212	EP 2000-921334	20000218 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2002542574	T	20021210	JP 2000-600317	20000218 <--
	US 6524742	B1	20030225	US 2000-507174	20000218 <--
	US 2004010909	A1	20040122	US 2003-371993	20030221 <--
PRAI	US 1999-120842P	P	19990219 <--		
	US 2000-507174	A3	20000218 <--		
	WO 2000-US4204	W	20000218 <--		

AB A freestanding, microporous **polymer** sheet is composed of a **polymer** matrix **binding** and elec. conductive matrix. The **polymer** matrix preferably includes UHMWPE, and the elec. conductive matrix preferably is in powder form. The UHMWPE is of a mol. weight that provides sufficient mol. chain entanglement to form a sheet with freestanding characteristics. Multiple microporous sheets can be wound or stacked in a package filled with an electrolyte to function as **electrodes** in an energy storage device, such as a **battery**. Metallic layers can be applied to the microporous sheets to function as current collectors in such devices.

IT **7440-48-4, Cobalt**, uses **7782-42-5, Graphite**, uses **11104-61-3, Cobalt oxide 11113-74-9, Nickel hydroxide 39300-70-4**, Lithium nickel oxide **52627-24-4, Cobalt** lithium oxide
RL: DEV (Device component use); USES (Uses)
(elec. conductive, freestanding microporous **polymer** sheet)

RN 7440-48-4 HCAPLUS
CN Cobalt (CA INDEX NAME)

Co

RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

RN 11104-61-3 HCAPLUS
CN Cobalt oxide (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 11113-74-9 HCAPLUS
CN Nickel hydroxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	x	14280-30-9
Ni	x	7440-02-0

RN 39300-70-4 HCAPLUS
CN Lithium nickel oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Ni	x	7440-02-0
Li	x	7439-93-2

RN 52627-24-4 HCAPLUS
CN Cobalt lithium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Co	x	7440-48-4
Li	x	7439-93-2

IT **9002-88-4**
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(elec. conductive, freestanding microporous **polymer** sheet)
RN 9002-88-4 HCAPLUS
CN Ethene, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 74-85-1
CMF C2 H4

$H_2C{=}CH_2$

L113 ANSWER 23 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:540589 HCAPLUS
DN 133:122716
TI A paste type negative **electrode** using a MmNi5 based **hydrogen storage alloy** for a **nickel** -metal **hydride** (**Ni**-MH) **battery**

AU Matsumoto, T.; Watanabe, S.; Kobayashi, K.; Ishizaka, Y.; Uchida, H.
CS Department of Applied Physics, Tokai University, Hiratsuka, Kanagawa, 259-1292, Japan
SO Kidorui (**2000**), 36, 160-161
CODEN: KIDOEP; ISSN: 0910-2205
PB Nippon Kidorui Gakkai
DT Journal
LA Japanese
AB Different conducting materials (**nickel**, cobalt, copper, **graphite**) were mixed with a MmNi5 type **hydrogen storage alloy**. Neg. **electrodes** for a **nickel**-metal **hydride** rechargeable **battery** were prepared and examined with respect to the discharge capacity of the **electrodes**. The change in the discharge capacity of the **electrodes** with different conducting materials was measured as a function of the number of the of electrochem. charge and discharge cycles.
IT **7440-48-4**, Cobalt, uses **7782-42-5**, **Graphite**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(paste type **anode** using misch metal-**nickel** based **hydrogen storage alloy** for **nickel** -metal **hydride battery**)
RN 7440-48-4 HCAPLUS
CN Cobalt (CA INDEX NAME)

Co

RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

IT **1333-74-0**, **Hydrogen**, uses
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(paste type **anode** using misch metal-**nickel** based **hydrogen storage alloy** for **nickel** -metal **hydride battery**)
RN 1333-74-0 HCAPLUS
CN Hydrogen (8CI, 9CI) (CA INDEX NAME)

H—H

L113 ANSWER 24 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:351788 HCAPLUS
DN 132:336923
TI Pasted **cathode** and process for its production for rechargeable **batteries**
IN Waggoner, James; Weckesser, John J.; Balaban, Canan; Puglisi, Vincent J.; Czajkowski, Robert; Rampel, Guy; Wu, Chao Yih
PA Moltech Power Systems, Inc., USA; Waggoner, Dawn, L.
SO PCT Int. Appl., 34 pp.
CODEN: PIXXD2

DT **Patent**
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000030192	A1	20000525	WO 1999-US26722	19991112 <--
	W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	US 6436575	B1	20020820	US 1998-191562	19981113 <--
PRAI	US 1998-191562	A2	19981113 <--		

AB The present invention provides a pos. **electrode** for a rechargeable cell including a two-dimensional elec. conductive substrate supporting a coating comprising **nickel hydroxide** and a **binder**, preferably a **styrene-ethylene** /butylene-**styrene** triblock **copolymer binder**. The coating is formed by applying a paste to the two dimensional substrate surface. The present invention also includes the cell made therefrom. The present invention further provides a method of producing this **electrode** including the steps of forming the paste and coating the paste onto the two dimensional substrate. The capacity, midpoint voltage and power delivery of the coated **electrode** are comparable to or exceed those of traditional sintered and foam pos. **electrodes**.

IT **106108-28-5**, Butylene-**ethylene**-**styrene** block **copolymer**
RL: TEM (Technical or engineered material use); USES (Uses)
(**binder**; pasted **cathode** and process for its production for rechargeable **batteries**)

RN 106108-28-5 HCAPLUS
CN Benzene, ethenyl-, polymer with butene and ethene, block (9CI) (CA INDEX NAME)

CM 1

CRN 100-42-5
CMF C8 H8

$H_2C{=}CH{-}Ph$

CM 2

CRN 74-85-1
CMF C2 H4

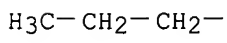
$H_2C{=}CH_2$

CM 3

CRN 25167-67-3
CMF C4 H8
CCI IDS

CM 4

CRN 106-97-8
CMF C4 H10



IT **11113-74-9, Nickel hydroxide**
RL: DEV (Device component use); USES (Uses)
(pasted **cathode** and process for its production for rechargeable **batteries**)
RN 11113-74-9 HCAPLUS
CN Nickel hydroxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	x	14280-30-9
Ni	x	7440-02-0

IT **7440-48-4, Cobalt**, uses **7782-42-5, Graphite**, uses **11104-61-3, Cobalt oxide 12672-51-4, Cobalt** hydroxide **61701-27-7, Cobalt** hydroxide oxide
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(pasted **cathode** and process for its production for rechargeable **batteries**)
RN 7440-48-4 HCAPLUS
CN Cobalt (CA INDEX NAME)

RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

RN 11104-61-3 HCAPLUS
CN Cobalt oxide (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 12672-51-4 HCAPLUS
CN Cobalt hydroxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	x	14280-30-9
Co	x	7440-48-4

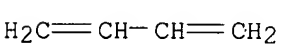
RN 61701-27-7 HCAPLUS
CN Cobalt hydroxide oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
HO	x	14280-30-9
Co	x	7440-48-4

IT **9003-55-8**
RL: TEM (Technical or engineered material use); USES (Uses)
(**styrene-butadiene rubber**, hydrogenated, block, triblock, Kraton G 1654; pasted **cathode** and process for its production for rechargeable **batteries**)
RN 9003-55-8 HCAPLUS
CN Benzene, ethenyl-, polymer with 1,3-butadiene (CA INDEX NAME)

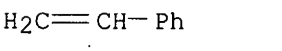
CM 1

CRN 106-99-0
CMF C4 H6



CM 2

CRN 100-42-5
CMF C8 H8



RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon	1988	012		PATENT ABSTRACTS OF	
Anon	1989	013		PATENT ABSTRACTS OF	
Anon	1991	015		PATENT ABSTRACTS OF	
Matsushita Electric Ind	1989			JP 01248472 A	HCAPLUS
Matsushita Electric Ind	1991			JP 03165469 A	HCAPLUS
Matsushita Electric Ind	1997			EP 0801430 A	HCAPLUS
Toshiba Battery Co Ltd	1988			JP 63170853 A	HCAPLUS

L113 ANSWER 25 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:278216 HCAPLUS
DN 132:281690
TI Molded solid electrolyte, molded **electrode**, and electrochemical element
IN Takada, Kazunori; Iwamoto, Kazuya; Kondo, Shigeo; Takeuchi, Yasumasa; Yasuda, Naoshi; Masaka, Fusazumi
PA Matsushita Electric Industrial Co., Ltd., Japan; JSR Corporation
SO PCT Int. Appl., 84 pp.
CODEN: PIXXD2

DT **Patent**
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000024077	A1	20000427	WO 1999-JP5623	19991012 <--
	W: US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	JP 2000123874	A	20000428	JP 1998-295844	19981016 <--
	EP 1049186	A1	20001102	EP 1999-970793	19991012 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	US 6368746	B1	20020409	US 2000-555888	20000608 <--
PRAI	JP 1998-295844	A	19981016 <--		
	WO 1999-JP5623	W	19991012 <--		

AB The electrolyte contains a solid electrolyte and a **polymer** composition containing 50-100% **polybutadiene**, having ≥70% 1,2-vinyl bonding and 5-50% crystallinity, and 0-50% polar **rubber**. The solid electrolyte is preferably a Li+ conducting electrolyte. The **electrodes** contain the above **polymer** composition and an **electrode** active mass. The electrochem. elements, e.g., **batteries**, use the above electrolyte and/or **electrodes**.

IT **7782-42-5, Graphite**, uses
RL: DEV (Device component use); USES (Uses)
(**anodes** containing **polybutadiene**-polar **rubber** mixts. for secondary lithium **batteries**)
RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

IT **12054-48-7, Nickel hydroxide** [**Ni(OH)2**]
RL: DEV (Device component use); USES (Uses)
(**cathodes** containing **polybutadiene**-polar **rubber** mixts. for nickel/cadmium **batteries**)
RN 12054-48-7 HCAPLUS
CN Nickel hydroxide (Ni(OH)2) (8CI, 9CI) (CA INDEX NAME)

HO—Ni—OH

IT **12031-65-1**, Lithium nickel oxide (LiNiO2) **12190-79-3, Cobalt** lithium oxide (CoLiO2)
RL: DEV (Device component use); USES (Uses)
(**cathodes** containing **polybutadiene**-polar **rubber** mixts. for secondary lithium **batteries**)
RN 12031-65-1 HCAPLUS
CN Lithium nickel oxide (LiNiO2) (6CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Ni	1	7440-02-0
Li	1	7439-93-2

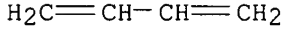
RN 12190-79-3 HCAPLUS
CN Cobalt lithium oxide (CoLiO2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

IT **9003-17-2, Polybutadiene 31567-90-5,**
Syndiotactic **polybutadiene**
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(**polybutadiene**-polar **rubber** mixts. for solid
electrolytes and **electrodes** for secondary **batteries**
)
RN 9003-17-2 HCAPLUS
CN 1,3-Butadiene, homopolymer (9CI) (CA INDEX NAME)

CM 1

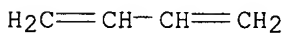
CRN 106-99-0
CMF C4 H6



RN 31567-90-5 HCAPLUS
CN 1,3-Butadiene, homopolymer, syndiotactic (9CI) (CA INDEX NAME)

CM 1

CRN 106-99-0
CMF C4 H6



RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Japan Synthetic Rubber	1969			JP 4432426 B1	
Matsushita Electric Ind	1993			JP 513100 A	
Matsushita Electric Ind	1993			US 5262255 A	HCAPLUS
Matsushita Electric Ind	1994			JP 06215761 A	HCAPLUS
Matsushita Electric Ind	1999			JP 1186899 A	

L113 ANSWER 26 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:166243 HCAPLUS
DN 132:196743
TI Economical nickel-type **cathode** produced without using foamed
nickel for alkaline secondary **battery**
IN Sakai, Tetsuo; Ishihara, Kazuhiko; Imaizumi, Junichi
PA Agency of Industrial Sciences and Technology, Japan; Toyo Kohan Co., Ltd.;
Tanaka Kagaku Kenkyusho K. K.
SO Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2000077068	A	20000314	JP 1998-245123	19980831 <--
PRAI JP 1998-245123		19980831 <--		

AB This **cathode** comprises a 2-dimensional elec. collector and an active mass containing **Ni(OH)2** coated with α-type **Co** hydroxide, a conductive agent, and a **binder**. The conductive agent may be a Ni powder and a **graphite** powder and the **binder** may be PTFE and **styrene-ethylene**-butylene-**styrene** block **copolymer**. The **cathode** can be produced by applying the **cathode** active mass to one or both sides of the 2-dimensional elec. collector and pressure-forming the resultant elec. collector. An alkaline secondary **battery** comprises such a **cathode**. Alternatively, the alkaline secondary **battery** is a closed type cylindrical alkaline secondary **battery**. Excellent conductive network of a highly conductive γ-CoOOH can be formed, so that the use coefficient of the **cathode** active mass can be heightened and elec. discharging can be carried out at significantly heightened performance.

IT **106108-28-5**, Butylene-**ethylene-styrene** block **copolymer**
RL: TEM (Technical or engineered material use); USES (Uses)
(**binder**, **cathode** containing; nickel type **cathode** with high use coefficient of active mass and high discharge ratio for alkaline secondary **battery**)

RN 106108-28-5 HCAPLUS
CN Benzene, ethenyl-, polymer with butene and ethene, block (9CI) (CA INDEX NAME)

CM 1

CRN 100-42-5
CMF C8 H8

$H_2C{=}CH{-}Ph$

CM 2

CRN 74-85-1
CMF C2 H4

$H_2C{=}CH_2$

CM 3

CRN 25167-67-3
CMF C4 H8
CCI IDS

CM 4

CRN 106-97-8
CMF C4 H10

$H_3C-CH_2-CH_2-CH_3$

IT **7782-42-5, Graphite,** uses
RL: TEM (Technical or engineered material use); USES (Uses)
(conductive agent; nickel type **cathode** with high use coefficient of active mass and high discharge ratio for alkaline secondary **battery**)
RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

IT **146240-42-8, Nickel** zinc **hydroxide**
[Ni0.95Zn0.05(OH)2]
RL: TEM (Technical or engineered material use); USES (Uses)
(nickel type **cathode** with high use coefficient of active mass and high discharge ratio for alkaline secondary **battery**)
RN 146240-42-8 HCAPLUS
CN Nickel zinc hydroxide (Ni0.95Zn0.05(OH)2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	2	14280-30-9
Zn	0.05	7440-66-6
Ni	0.95	7440-02-0

IT **12672-51-4, Cobalt** hydroxide
RL: TEM (Technical or engineered material use); USES (Uses)
(α-type, **cathode** active mass containing; nickel type **cathode** with high use coefficient of active mass and high discharge ratio for alkaline secondary **battery**)
RN 12672-51-4 HCAPLUS
CN Cobalt hydroxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	x	14280-30-9
Co	x	7440-48-4

IT **12016-80-7P, Cobalt** oxyhydroxide
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(γ-type, formed in **cathode** active mass; nickel type **cathode** with high use coefficient of active mass and high discharge ratio for alkaline secondary **battery**)
RN 12016-80-7 HCAPLUS
CN Cobalt hydroxide oxide (Co(OH)O) (9CI) (CA INDEX NAME)

HO—Co═O

L113 ANSWER 27 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:62904 HCAPLUS
DN 132:80888
TI Production of **hydrogen storage anodes** for **batteries**
IN Chacon Guadalix, Joaquin; Soria Garcia-Ramos, Maria Luisa; Trinidad Lopez, Francisco
PA Sociedad Espanola del Acumulador Tudor, S.A., Spain
SO Span., 8 pp.
CODEN: SPXXAD
DT **Patent**
LA Spanish
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI ES 2130996	A1	19990701	ES 1997-1074	19970519 <--
ES 2130996	B1	20000301		
PRAI ES 1997-1074		19970519 <--		

AB **Hydrogen storage battery anodes** are produced using **Ni** or **Ni**-plated substrates coated with **H2**-absorbing **alloys**, which are pressed and activated by surface oxidation A paste is prepared by mixing powdered elec. conductors and **binders** (e.g., natural or synthetic polysaccharides or fluorinated resins), optionally in the presence of water or organic solvents, under continuous tempering and rolling. The paste is applied to the surface of the porous substrate, then coated with metal **hydride** powder. The structure is compressed by pressing, then activated by partial oxidation
IT **7782-42-5, Graphite,** uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(production of **hydrogen storage battery anodes**)
RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

L113 ANSWER 28 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:6042 HCAPLUS
DN 132:95678
TI A new **electrode** material for **nickel**-metal **hydride batteries**: MgNi-**graphite** composites prepared by ball-milling
AU Iwakura, Chiaki; Inoue, Hiroshi; Zhang, Shu G.; Nohara, Shinji
CS Department of Applied Chemistry, College of Engineering, Osaka Prefecture University, Osaka, 599-8531, Japan
SO Journal of Alloys and Compounds (**1999**), 293-295, 653-657
CODEN: JALCEU; ISSN: 0925-8388
PB Elsevier Science S.A.
DT Journal
LA English
AB MgNi-**graphite** composites prepared by ball-milling were found to

show greatly enhanced charge-discharge characteristics with respect to the original MgNi **alloy**. There was an optimal ball-milling time for the preparation of the MgNi **graphite** composite with enhanced **electrode** performance, when the modification with **graphite** was limited to the surface layer of MgNi **alloy**. Raman and XPS investigations on the composites indicated a decline in the π-electron character of **graphite** and changes in the chemical states of the constituents on **alloy** surface, suggesting the possibility of charge transfer between **graphite** and MgNi **alloy** during ball-milling, which resulted in an increase in the surface **Ni**/Mg ratio.

IT **7782-42-5, Graphite**, uses
RL: DEV (Device component use); USES (Uses)
(composite with MgNi; **electrode** material for **nickel** -metal **hydride batteries**: MgNi-**graphite** composites prepared by ball-milling)
RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

IT **1333-74-0, Hydrogen**, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(**electrode** material for **nickel**-metal **hydride batteries**: MgNi-**graphite** composites prepared by ball-milling)
RN 1333-74-0 HCAPLUS
CN Hydrogen (8CI, 9CI) (CA INDEX NAME)

H—H

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Caswell, N	1978	27	961	Solid State Commun	HCAPLUS
Dresselhaus, M	1981	30	139	Adv Phys	HCAPLUS
Imamura, H	1996	232	218	J Alloys Comp	HCAPLUS
Inaba, M	1995	143	2572	J Electrochem Soc	
Iwakura, C	1996		1831	Chem Commun	HCAPLUS
Lei, Y	1993	181	379	Z Phys Chem	
Meri, F	1991	172	1252	J Less-Common Metals	
Nohara, S	1997	252	16	J Alloys Comp	
Rao, A	1997	388	257	Nature	HCAPLUS
Rao, C	1996		1526	Chem Commun	
Reilly, J	1967	6	2220	Inorg Chem	HCAPLUS
Slig, H	1980	23	281	Adv Inorg Radiochem	
Stampfer, J	1960	82	3504	J Am Chem Soc	HCAPLUS
Tuinstra, F	1970	53	1126	J Chem Phys	HCAPLUS
Vol'pin, M	1975	97	3366	J Am Chem Soc	HCAPLUS
Wagner, C	1973	35	82	Surf Sci	HCAPLUS
Zhang, S	1998	270	123	J Alloys Comp	HCAPLUS

L113 ANSWER 29 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1999:189299 HCAPLUS
DN 130:184879

TI Molded solid electrolytes, molded **electrodes**, and electrochemical elements
IN Takada, Kazunori; Iwamoto, Kazuya; Kondo, Shigeo; Yasuda, Naoshi; Masaka, Fusazumi; Takeuchi, Yasumasa
PA Matsushita Electric Industrial Co., Ltd., Japan; JSR Corporation
SO PCT Int. Appl., 96 pp.
CODEN: PIXXD2
DT **Patent**
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9912221	A1	19990311	WO 1998-JP3912	19980831 <--
	W: US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	JP 11086899	A	19990330	JP 1997-238705	19970903 <--
	JP 3655443	B2	20050602		
	EP 977296	A1	20000202	EP 1998-940665	19980831 <--
	R: DE, FR, GB				
	US 6200707	B1	20010313	US 1999-297478	19990430 <--
PRAI	JP 1997-238705	A	19970903 <--		
	WO 1998-JP3912	W	19980831 <--		

AB The molded electrolytes contain a solid electrolyte and a hydrogenated **copolymer**, containing 5-70% **polybutadiene** blocks, having ≤15% 1,2-vinyl bonding, and 30-95% blocks of **polybutadiene** or **butadiene**-(0-50%) other monomer **copolymer**, having 20-90% 1,2 vinyl bonding in the **butadiene** part. The **electrodes** contain an **electrode** active mass and the above described block **copolymer**. The electrochem. elements, e.g., **batteries** have an **electrode** pair and an electrolyte layer, where the **electrodes** and/or the electrolyte contain the block **copolymer**.
IT **9003-17-2D, Polybutadiene**, hydrogenated
9003-55-8D, Butadiene-styrene copolymer, hydrogenated
RL: DEV (Device component use); USES (Uses)
(hydrogenated **butadiene polymers** for **electrodes** and solid electrolytes in secondary lithium **batteries**)
RN 9003-17-2 HCAPLUS
CN 1,3-Butadiene, homopolymer (9CI) (CA INDEX NAME)

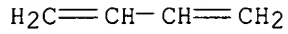
CM 1

CRN 106-99-0
CMF C4 H6

RN 9003-55-8 HCAPLUS
CN Benzene, ethenyl-, polymer with 1,3-butadiene (CA INDEX NAME)

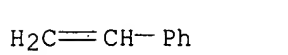
CM 1

CRN 106-99-0
CMF C4 H6

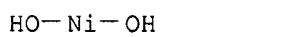


CM 2

CRN 100-42-5
CMF C8 H8



IT **12054-48-7, Nickel hydroxide [Ni(OH)2]**
RL: DEV (Device component use); USES (Uses)
(hydrogenated **butadiene polymers** for **electrodes** in secondary **batteries**)
RN 12054-48-7 HCAPLUS
CN Nickel hydroxide (Ni(OH)2) (8CI, 9CI) (CA INDEX NAME)



IT **7782-42-5, Graphite**, uses **12031-65-1**, Lithium nickel oxide (LiNiO2) **12190-79-3, Cobalt** lithium oxide (CoLiO2)
RL: DEV (Device component use); USES (Uses)
(hydrogenated **butadiene polymers** for **electrodes** in secondary lithium **batteries**)
RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

RN 12031-65-1 HCAPLUS
CN Lithium nickel oxide (LiNiO2) (6CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Ni	1	7440-02-0
Li	1	7439-93-2

RN 12190-79-3 HCAPLUS
CN Cobalt lithium oxide (CoLiO2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Asahi Chemical Industry	1988			JP 63-181258 A	HCAPLUS
Japan Synthetic Rubber	1990			JP 02-61912 A	
Japan Synthetic Rubber	1992			JP 04-342752 A	HCAPLUS
Matsushita Electric Ind	1988			JP 63-237361 A	HCAPLUS
Matsushita Electric Ind	1989			JP 01-260765 A	HCAPLUS
Matsushita Electric Ind	1991			JP 03-15170 A	HCAPLUS
Matsushita Electric Ind	1991			JP 03-20906 A	HCAPLUS

L113 ANSWER 30 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1999:23531 HCAPLUS
DN 130:84067
TI Manufacture of nonsintered alkaline secondary **battery cathodes**
IN Hayashi, Takayuki; Kawano, Hiroshi; Matsumoto, Isao
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 11003703	A	19990106	JP 1997-154769	19970612 <--
PRAI	JP 1997-154769		19970612 <--		

AB Metal oxide powder is kneaded with addition of at least poly(**tetrafluoroethylene**) and crushed to obtain active material powder. Conductive support is filled with or coated with the powder to give the title **cathodes**. Preferably, poly(**tetrafluoroethylene**) having SSG (ASTM standard sp. gr.) <2.20 is used as the **binder**. **Batteries** having high energy d. and showing long lifetime are prepared
IT **7782-42-5, Graphite**, uses **12054-48-7, Nickel hydroxide 12672-51-4, Cobalt** hydroxide
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(**cathode** active material; use of PTFE as **binders** in preparation of nonsintered alkaline secondary **battery cathodes**)
RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

RN 12054-48-7 HCAPLUS
CN Nickel hydroxide (Ni(OH)2) (8CI, 9CI) (CA INDEX NAME)

HO—Ni—OH

RN 12672-51-4 HCAPLUS
CN Cobalt hydroxide (9CI) (CA INDEX NAME)

Component	Ratio	Component

		Registry Number
HO	x	14280-30-9
Co	x	7440-48-4

L113 ANSWER 31 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1998:153212 HCAPLUS
DN 128:194636
TI Charging efficiency of metal-**hydride electrodes**
AU Chen, J.; Dou, S. X.; Bradhurst, D.; Liu, H. K.
CS Northfields Avenue, Institute for Materials Technology and Manufacturing, University of Wollongong, Wollongong, Australia
SO Journal of Power Sources (**1998**), 70(1), 110-113
CODEN: JPSODZ; ISSN: 0378-7753
PB Elsevier Science S.A.
DT Journal
LA English
AB The charging efficiencies of MmNi5, MmNi4.5Mn0.5, MmNi3.8Co0.7Mn0.5, ZrV0.6Ni1.4, ZrV0.6Mn0.4Ni1.0, ZrV0.6Mn0.4Co0.2Ni0.8 **alloy electrodes** (Mm = misch metal) were investigated in terms of **hydrogen** evolution. Expts. were conducted to optimize (a) elemental composition of the MmNi5 system and Zr-based Laves-phase **hydrogen storage alloys**, (b) additive materials, such as cobalt powder, **nickel** powder, Teflonized carbons, and acetylene black, (c) the proportion of the additives in the **alloy**, and (d) the best percentage of the composite additives in the metal **hydride electrodes**. The results show that the **electrode** activation, charging efficiency, and high-rate discharge depend greatly on the active materials, as well as the type and the amount of the additives in the **electrodes**.
IT **7440-48-4**, Cobalt, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**anode** containing additive of; charging efficiency of **hydrogen**-absorbing **alloy anodes** for **batteries**)
RN 7440-48-4 HCAPLUS
CN Cobalt (CA INDEX NAME)

Co

IT **203580-29-4 203580-30-7**
RL: DEV (Device component use); USES (Uses)
(charging efficiency of **hydrogen**-absorbing **alloy anodes** for **batteries**)
RN 203580-29-4 HCAPLUS
CN Nickel alloy, base, Ni 52,misch metal 32,Co 9.6,Mn 6.4 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	52	7440-02-0
Misch metal	32	8049-20-5
Co	9.6	7440-48-4
Mn	6.4	7439-96-5

RN 203580-30-7 HCAPLUS

CN Zirconium alloy, base, Zr 45,Ni 23,V 15,Mn 11,Co 5.8 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Zr	45	7440-67-7
Ni	23	7440-02-0
V	15	7440-62-2
Mn	11	7439-96-5
Co	5.8	7440-48-4

IT **1333-74-0**, **Hydrogen**, uses
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(charging efficiency of **hydrogen**-absorbing **alloy anodes** for **batteries**)
RN 1333-74-0 HCAPLUS
CN Hydrogen (8CI, 9CI) (CA INDEX NAME)

H—H

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Chen, J	1995	20	235	Int J Hydrogen Energ	HCAPLUS
Friedrich, B	1994	3	37	J Mater Eng Performa	HCAPLUS
Hasegawa, K	1994	183	325	Z Phys Chem	HCAPLUS
Notten, P	1991	138	1877	J Electrochem Soc	HCAPLUS
Ogawa, H	1989	12	393	J Power Sources	
Ovshinsky, S	1993	260	176	Science	HCAPLUS
Petrov, K	1993		250	Proc Symp Batteries	HCAPLUS
Sakai, T	1995	2	13	Handbook of Physics	
Sakai, T	1991	172/1	1194	J Less-Common Met	
Sakai, T	1991		499	Proc 3rd Int Conf Ba	
Zhang, W	1995	142	2935	J Electrochem Soc	HCAPLUS

L113 ANSWER 32 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1997:562024 HCAPLUS
DN 127:250500
TI Effect of additives to AB5 **alloys** and of cell configuration on the performance of **hydride electrodes**
AU Visintin, Arnaldo; Smith, Dustin; Gamboa-Aldeco, Maria; Srinivasan, Supramaniam
CS Instituto Nacional de Investigaciones Fisicoquimica Teoricas y Aplicadas (INIFTA), Universidad Nacional de La Plata, La Plata, 1900, Argent.
SO Proceedings - Electrochemical Society (**1997**), 97-18(Batteries for Portable Applications and Electric Vehicles), 780-786
CODEN: PESODO; ISSN: 0161-6374
PB Electrochemical Society
DT Journal
LA English
AB The effect of carbon and **nickel** additives to the **electrode** on the electrochem. performance of a **Ni**-MHx **alloy** of the AB5 type (MmNi4.1Co0.4Mn0.4Al0.3) is studied. Carbon with high microporosity such as Vulcan XC72, shows better discharge capacity of the **electrode** as compared to a carbon with low

surface area, due to a better distribution of reactants in the hydriding/dehydriding reactions. Hydrophilicity of the carbon binder plays also an important role in the performance of the **electrode**. **Electrodes** treated with a wetting agent show larger discharge capacity as compared to those **electrodes** made with hydrophobic carbon. Addition of high surface area **Ni** powder to the **electrode** improves its performance, possibly due to an increase of the electrocatalytic activity of the **electrode** for the water discharge step of the dehydriding reaction, and this effect increases with the amount of **nickel** powder added to the **electrode**. Mech. compression of the **electrode** minimizes its phys. degradation during the charge/discharge cycles, and therefore improves its cyclic life performance.

IT **195616-33-2**
RL: DEV (Device component use); USES (Uses)
(effect of **nickel** and carbon additives to AB5 **alloys** and of cell configuration on the performance of **hydride electrodes**)
RN 195616-33-2 HCAPLUS
CN Nickel alloy, base, Ni 55,misch metal 32,Co 5.4,Mn 5.1,Al 1.9 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	55	7440-02-0
Misch metal	32	8049-20-5
Co	5.4	7440-48-4
Mn	5.1	7439-96-5
Al	1.9	7429-90-5

IT **1333-74-0**, **Hydrogen**, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(**storage** of; effect of **nickel** and carbon additives to AB5 **alloys** and of cell configuration on the performance of **hydride electrodes**)
RN 1333-74-0 HCAPLUS
CN Hydrogen (8CI, 9CI) (CA INDEX NAME)

H—H

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anani, A	1994	47	261	J Power Sources	HCAPLUS
Kalal, P	1997	PV96-	47	Aqueous Batteries/19	

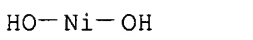
L113 ANSWER 33 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1995:278384 HCAPLUS
DN 122:110656
TI Metal **alloy** loaded carbon aerogel **hydrogen** **hydride battery**
IN Struthers, Ralph C.
PA USA
SO U.S., 9 pp.
CODEN: USXXAM
DT **Patent**

LA English
FAN.CNT 1

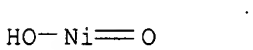
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5366828	A	19941122	US 1993-148964	19931108 <--
PRAI	US 1993-148964		19931108 <--		

AB A **hydrogen hydride battery** includes an **anode-cathode** cell stack, where the **anode** is a microporous C aerogel of random C fibers in 3-dimensional form and a **H**-absorbing **alloy** supported by the aerogel. The **cathode** has similar structure but with **Ni(OH) 2** supported by the aerogel. Central electrolyte separators from porous dielec. material are positioned between the **electrodes.**

IT **12054-48-7, Nickelous hydroxide**
RL: DEV (Device component use); USES (Uses)
(**cathode**; metal **alloy** loaded carbon aerogel **hydrogen hydride battery**)
RN 12054-48-7 HCAPLUS
CN Nickel hydroxide (Ni(OH)2) (8CI, 9CI) (CA INDEX NAME)



IT **12026-04-9, Nickel** hydroxideoxide (niooh)
RL: DEV (Device component use); FMU (Formation, unclassified); FORM (Formation, nonpreparative); USES (Uses)
(**cathode**; metal **alloy** loaded carbon aerogel **hydrogen hydride battery**)
RN 12026-04-9 HCAPLUS
CN Nickel hydroxide oxide (Ni(OH)O) (9CI) (CA INDEX NAME)



IT **1333-74-0, Hydrogen,** uses
RL: DEV (Device component use); USES (Uses)
(metal **alloy** loaded carbon aerogel **hydrogen hydride battery**)
RN 1333-74-0 HCAPLUS
CN Hydrogen (8CI, 9CI) (CA INDEX NAME)

L113 ANSWER 34 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1994:327528 HCAPLUS
DN 120:327528
TI Sealed metal oxide-**hydrogen storage battery**
IN Matsumoto, Isao; Ikoma, Munehisa; Morishita, Noriyasu; Toyoguchi, Yoshinori; Matsuda, Hiromu
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Eur. Pat. Appl., 23 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	EP 587974	A1	19940323	EP 1993-101379	19930129	<--
	EP 587974	B1	19970402			
	R: DE, FR, GB, NL					
	JP 06103972	A	19940415	JP 1992-248400	19920918	<--
	JP 3438142	B2	20030818			
	JP 2003229120	A	20030815	JP 2003-5711	19920918	<--
	JP 3536849	B2	20040614			
	JP 2003229122	A	20030815	JP 2003-5713	19920918	<--
	JP 3536850	B2	20040614			
	US 5455125	A	19951003	US 1994-330603	19941028	<--
	JP 2003229121	A	20030815	JP 2003-5712	20030114	<--
	JP 3603892	B2	20041222			
PRAI	JP 1992-248400	A	19920918	<--		
	US 1993-8908	B1	19930125	<--		

AB A sealed secondary **battery** (e.g., Ni-H. **storage**) for a portable power supply is improved by using ≥2 metal oxide **cathodes** and ≥2 **hydrogen storage** alloy **anodes** for higher capacity and lighter weight The **cathode** has high energy d. in a wide temperature range and consists of a bulk high porosity (Ni) body filled with an active material composed of NiO, MnO2, NiO solid solution with **Co** and other metals, oxide powders such as Ca(OH)2, and **graphite** for rendering the **cathode** reaction effective. The high capacity **anode** is a **hydrogen storage** alloy (ABα or ABβ) having reduced equilibrium **hydrogen** pressure. The high temperature characteristics of the **battery** are enhanced by a suitable alkaline electrolyte, short circuits are prevented by a chemical stable polyolefin separator, and a structure is provided for sealing a container and a vent for air-tightness and reliability.

IT **9003-53-6**, Polystyrol
RL: USES (Uses)
(adhesive, in sealed portable metal oxide-metal hydride secondary **batteries**, high capacity and lightwt.)

RN 9003-53-6 HCAPLUS
CN Benzene, ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 100-42-5
CMF C8 H8

$H_2C{=}CH{-}Ph$

IT **1333-74-0**, Hydrogen, uses
RL: USES (Uses)
(alloys for absorption of, **anodes**, sealed secondary **batteries** containing)

RN 1333-74-0 HCAPLUS
CN Hydrogen (8CI, 9CI) (CA INDEX NAME)

H—H

IT **1313-99-1**, **Nickel** oxide, uses **7440-48-4**, **Cobalt**, uses **7782-42-5**, **Graphite**, uses

11104-61-3, Cobalt oxide 155472-21-2
, Cobalt nickel hydroxide (CoNi(OH)2)
RL: USES (Uses)
(**cathodes** containing, in sealed portable metal oxide-metal **hydride** secondary **batteries**, high capacity and lightwt.)
RN 1313-99-1 HCAPLUS
CN Nickel oxide (NiO) (8CI, 9CI) (CA INDEX NAME)

Ni═O

RN 7440-48-4 HCAPLUS
CN Cobalt (CA INDEX NAME)

Co

RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

RN 11104-61-3 HCAPLUS
CN Cobalt oxide (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 155472-21-2 HCAPLUS
CN Cobalt nickel hydroxide ((Co,Ni)(OH)2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	2	14280-30-9
Co	0 - 1	7440-48-4
Ni	0 - 1	7440-02-0

IT **9002-88-4, Polyethylene**
RL: USES (Uses)
(fibers, separator, in sealed portable metal oxide-metal hydride secondary **batteries**, high capacity and lightwt.)
RN 9002-88-4 HCAPLUS
CN Ethene, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 74-85-1
CMF C2 H4

$H_2C═CH_2$

IT **153973-12-7**
RL: USES (Uses)
(hydrogen-absorbing, **anodes**, in sealed portable metal

oxide-metal hydride secondary **batteries**, high capacity and lightwt.)
RN 153973-12-7 HCAPLUS
CN Nickel alloy, base, Ni 53,misch metal 33,Co 7,Mn 5.2,Al 1.9 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	53	7440-02-0
Misch metal	33	8049-20-5
Co	7	7440-48-4
Mn	5.2	7439-96-5
Al	1.9	7429-90-5

IT **9010-79-1**
RL: USES (Uses)
(**rubber**, sealant, in sealed portable metal oxide-metal hydride secondary **batteries**, high capacity and lightwt.)
RN 9010-79-1 HCAPLUS
CN 1-Propene, polymer with ethene (CA INDEX NAME)

CM 1

CRN 115-07-1
CMF C3 H6

$H_3C-CH=CH_2$

CM 2

CRN 74-85-1
CMF C2 H4

$H_2C=CH_2$

L113 ANSWER 35 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1992:177702 HCAPLUS
DN 116:177702
TI Nickel **cathodes** for alkaline **batteries**
IN Iwaki, Tsutomu; Moriwaki, Yoshio; Shintani, Akiyoshi
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 2 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

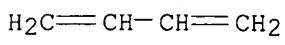
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 03149753	A	19910626	JP 1989-288367	19891106 <--
PRAI JP 1989-288367		19891106 <--		

AB The **cathodes** comprise **Ni hydroxide**, synthetic **elastomeric binder**, and fibrous **graphite** conductor. These **cathodes** have long lifetime

and high capacity.
IT **9003-55-8**
RL: USES (Uses)
(**binder, cathodes** containing **graphite** fibers and, nickel, for **batteries**)
RN 9003-55-8 HCAPLUS
CN Benzene, ethenyl-, polymer with 1,3-butadiene (CA INDEX NAME)

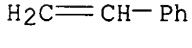
CM 1

CRN 106-99-0
CMF C4 H6



CM 2

CRN 100-42-5
CMF C8 H8



IT **7782-42-5**
RL: USES (Uses)
(carbon fibers, **graphite, cathodes** containing, nickel, for **batteries**)
RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

RL: USES (Uses)
(fibers, **cathodes** contg.**elastomer binders** and, nickel, for **batteries**
IT **7440-48-4, Cobalt**, uses
RL: USES (Uses)
(**graphite** fibers containing, in nickel **cathodes**, for **batteries**)
RN 7440-48-4 HCAPLUS
CN Cobalt (CA INDEX NAME)

Co

L113 ANSWER 36 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1991:659914 HCAPLUS
DN 115:259914
TI Manufacture of alkaline **batteries** with nickel **cathode**
IN Iwaki, Tsutomu; Moriwaki, Yoshio; Shintani, Akiyoshi
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 3 pp.

CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 03165469	A	19910717	JP 1989-305460	19891124 <--
PRAI JP 1989-305460		19891124 <--		

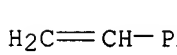
AB The **batteries** are manufactured by fabrication of Ni **cathodes** by coating a 2-dimensional porous conductive collector with paste containing **Ni(OH)2**, conductive agent and thermoplastic **binder**, forming into a sheet, and bonding with a separator sheet by pressure under heating. This suppresses degradation of contact of active material with the collector by expansion and contraction by charging and discharging,. Thus, a mixture of **Ni(OH)2** 75, **Co** powder 6, scaly **graphite** 8, Ni powder 8, and acrylonitrile fiber 0.8 parts was kneaded with addition of PhMe solution of butylene-ethylene-styrene **copolymer**, and the obtained paste was applied on both sides of a Ni-plated Fe punched sheet. The sheet was passed through a slit, and bonded on both sides with polypropylene unwoven cloth (treated with concentrate H2SO4 for hydrophilicity) with pressure at 160°. A Ni-Cd **battery** using this **cathode** showed longer charge-discharge cycle lifetime than reference **battery** with **cathode** not bonded with separator sheets.

IT **57271-36-0**, Butylene-ethylene-styrene **copolymer**
RL: USES (Uses)
(**binder**, for **nickel hydroxide cathode**)

RN 57271-36-0 HCAPLUS
CN Benzene, ethenyl-, polymer with butene and ethene (9CI) (CA INDEX NAME)

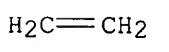
CM 1

CRN 100-42-5
CMF C8 H8



CM 2

CRN 74-85-1
CMF C2 H4



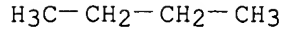
CM 3

CRN 25167-67-3
CMF C4 H8
CCI IDS

CM 4

CRN 106-97-8

CMF C4 H10



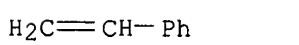
L113 ANSWER 37 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1990:39805 HCAPLUS
DN 112:39805
TI Nickel **cathodes** for alkaline **batteries**
IN Moriwaki, Yoshio; Iwaki, Tsutomu; Gamo, Koji; Kondo, Shigeo
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 01248472	A	19891004	JP 1988-76712	19880330 <--
JP 07034364	B	19950412		
PRAI JP 1988-76712		19880330 <--		

AB Ni **cathode** for alkaline **batteries** is not sintered but contains butylene-ethylene-styrene **copolymer** as **binder**. This **binder** provides good **binding** property and antioxidative action. Thus, a paste containing **Ni hydroxide** 75, **Co** powder 6, **graphite** 15, acrylonitrile fiber 0.8, and butylene-ethylene-styrene **copolymer** 3% was applied on **cathode** grid, dried and treated with **fluoropolymer** dispersion to obtain the **cathode**. Alkaline **batteries** using this **cathode** and Cd paste **anode** had excellent performance.
IT **57271-36-0**
RL: USES (Uses)
(binder, in nickel **cathode** manufacture, for alkaline **batteries**)
RN 57271-36-0 HCAPLUS
CN Benzene, ethenyl-, polymer with butene and ethene (9CI) (CA INDEX NAME)

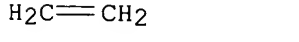
CM 1

CRN 100-42-5
CMF C8 H8



CM 2

CRN 74-85-1
CMF C2 H4



CM 3

CRN 25167-67-3
CMF C4 H8
CCI IDS

CM 4

CRN 106-97-8
CMF C4 H10

$H_3C-CH_2-CH_2-CH_3$

L113 ANSWER 38 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1988:476619 HCAPLUS
DN 109:76619
TI Nonsintered metal-overcoated nonwoven-fiber mats
IN Hall, Dale Edward; Lipka, Stephen Mark
PA American Cyanamid Co., USA
SO Eur. Pat. Appl., 22 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 264771	A2	19880427	EP 1987-114900	19871013 <--
	EP 264771	A3	19900110		
	R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE				
	DK 8705354	A	19880415	DK 1987-5354	19871013 <--
	FI 8704511	A	19880415	FI 1987-4511	19871013 <--
	NO 8704267	A	19880415	NO 1987-4267	19871013 <--
	NO 166544	B	19910429		
	NO 166544	C	19910807		
	BR 8705499	A	19880524	BR 1987-5499	19871014 <--
	JP 63182461	A	19880727	JP 1987-259407	19871014 <--
	IL 84178	A	19910630	IL 1987-84178	19871014 <--
PRAI	US 1986-918439	A	19861014 <--		

AB A nonwoven-fiber mat for a **battery electrode** and having a multiplicity of pores extending continuously from 1 mat surface to the other comprises a multiplicity of electrocoatable fibers randomly overlaid and intersecting substantially within the same 2 dimensional plane, a fibrillated **binder** in a structurally supportive amount dispersed in the mat and in contact with the electrocoatable fibers, and a substantially uniform metal overcoat covering the fibers and at least partly incorporating the **binder** of the sites where the **binder** contacts the electrocoatable fibers. The electrocoatable fibers are selected from metal-coated elec. conductive fibers, elec. conductive fibers, and/or metal-coated nonconductive fibers. The metal is selected from Ni, Fe, **Co**, Pt, Au, Ag, Cu, Pd, Al, Pb, Zn, Sn, Cr, Cd, Ru, and alloys having ≥1 of these metals as a main component; elec. conductive fibers are selected from carbon, **graphite**, activated carbon, pitch-based **graphite**, intercalated **graphite**, B, and/or SiC fibers and the nonconductive fibers are selected from fibers of polyesters, polyolefins, acrylics, polyamides, their **copolymers**, and glass and/or ceramic. The **binder** is selected from fibers of acrylics,

polyfluorocarbons, their **copolymers**, and their mixts. Elec. resistivities and Hg porosimetry data for a number of Ni-coated **graphite**- and carbon-fiber mats plated with various amts. of Ni were determined as well as the performances of **Ni hydroxide** -impregnated Ni-coated **graphite**-fiber **electrodes**. The resp. volumetric and gravimetric energy densities of these **electrodes** were 0.254 and 0.415 A-h/cm3 and 0.179, 0.186, and 0.227 A-h/g; and their active mass utilization was 85-90%.

IT **7782-42-5**
RL: USES (Uses)
(carbon fibers, **graphite**, nickel-coated, mats from nonwoven, for **battery electrodes**)
RN 7782-42-5 HCAPLUS
CN Graphite (CA INDEX NAME)

C

IT **12054-48-7, Nickel hydroxide (Ni(OH)2)**
RL: USES (Uses)
(**cathodes**, with nickel-coated **graphite**-fiber mat, properties of for **batteries**)
RN 12054-48-7 HCAPLUS
CN Nickel hydroxide (Ni(OH)2) (8CI, 9CI) (CA INDEX NAME)

HO—Ni—OH

IT **7440-48-4, Cobalt**, uses and miscellaneous
RL: USES (Uses)
(fibers coated with, mats from nonwoven, for **battery electrodes**)
RN 7440-48-4 HCAPLUS
CN Cobalt (CA INDEX NAME)

Co

L113 ANSWER 39 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1985:116642 HCAPLUS
DN 102:116642
TI Manufacture of unsintered nickel **electrodes**
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 59189560	A	19841027	JP 1983-63882	19830412 <--
PRAI JP 1983-63882		19830412 <--		

AB The title **electrodes** are prepared on conductive porous grids by packing with **Ni hydroxide** and drying, adding a **binder** and drying, impregnating the packed grid with a **Co**

salt solution, immersing in an alkali, and by subsequent washing and drying. Thus, an active material paste was prepared containing 200-mesh **Ni hydroxide** 1 kg, carbonyl Ni 50 g, **graphite** 80 g, acrylonitrile-vinyl chloride **copolymer** fibers 15 g, **polyethylene** powder 25 g, carbonyl **Co** 60 g, and 2 weight% CMC 1 kg. **Electrodes** were prepared on Ni-plated punched metal grids by packing with the paste and drying, impregnating the packed grid with a 5 weight% **polyethylene** dispersion and heat treating at 140° for 20 min, immersing the grid into a solution containing 300 g **Co** acetate/L and drying at 100° for 20 min, immersing the packed grids into 20% KOH at 45° for 20 min, washing and drying at 100° for 40 min,and by pressing. The **electrodes** showed no softening or peeling during the preparation, and the performance of **batteries** containing the **electrodes** was high.

IT **12672-51-4**
RL: USES (Uses)
(**cathodes** containing, **nickel hydroxide**, **battery**, manufacture of unsintered)
RN 12672-51-4 HCAPLUS
CN Cobalt hydroxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	x	14280-30-9
Co	x	7440-48-4

IT **11113-74-9**
RL: USES (Uses)
(**cathodes**, containing **cobalt** hydroxide, **battery**, manufacture of unsintered)
RN 11113-74-9 HCAPLUS
CN Nickel hydroxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	x	14280-30-9
Ni	x	7440-02-0

L113 ANSWER 40 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1984:54553 HCAPLUS
DN 100:54553
TI **Battery electrode**
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 58150270	A	19830906	JP 1982-33376	19820302 <--
PRAI JP 1982-33376		19820302 <--		

AB A mech. strong **battery electrode** with good active material utilization value, for high discharge-voltage **batteries** is prepared by coating or press-laminating a grid with a **binder** -containing active material comprising 5-30% conductive 0.3-2-mm long fibers and 1-10% insulating 2-6-mm-long fibers. Thus, .apprx.1.1-mm-thick sheets

were prepared from a mixture of powdered **Ni hydroxide** 5000, powdered carbonyl Ni 150, powdered **Co** 150, scaly **graphite** 170, acrylonitrile-vinyl chloride **copolymer** fibers (average diameter 10μ, average length 5 mm) 120, Ni fibers (average diameter 10μ, average length 0.5 mm) 300 g, and 5 L aqueous CM-cellulose. A 0.13-mm-thick perforated Ni-plated Fe plate (hole diameter 1.8 mm) was sandwiched between 2 sheets, the composite was passed through a slit, heated for 90 min at 100° and for 20 min at 120°, and pressed at 550 kg/cm2 to prepare a **cathode** (average thickness 0.63 mm). The utilization value of the **cathode** in a **battery** using a Cd **anode** was 94(90)% at 0.2 (1.0) C discharging and cut-off voltage of 1 (0.8) V, and the cycle life of the **battery** at 0.25 C-150% charge and 0.3 C discharge was 723, compared with 79 (75)% and 703 cycles when the Ni fibers were omitted.

L113 ANSWER 41 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1983:110686 HCAPLUS
DN 98:110686
TI Winding of **electrode** composite for secondary alkaline **batteries**
PA Furukawa Battery Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 2 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 57194464	A	19821130	JP 1981-77964	19810525 <--
	JP 62058111	B	19871204		
PRAI	JP 1981-77964		19810525 <--		

AB The **electrode** active ingredient contains a **polymer binder**, and an **electrode**-separator composite is heated and wound while the **binder** is pliable or molten. Thus, a Ni **electrode** active ingredient of **Ni(OH)2** 50, **Co** hydroxide 10, **graphite** 30, and polyethylene powder 10 parts was filled into a Ni-plated perforated steel, heated, and pressed to prepare a Ni **cathode**, which was stacked with a separator and a Cd **anode**. The obtained composite was wound at ≥80°. A **battery** using the **electrode** retained 60% of its original capacity after .apprx.500 cycle vs. .apprx.350 cycle for a comparison **battery** containing conventionally wound **electrode** composite.

L113 ANSWER 42 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1982:600793 HCAPLUS
DN 97:200793
TI Nickel **electrodes**
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Tokkyo Koho, 4 pp.
CODEN: JAXXAD
DT **Patent**
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 57032856	B	19820713	JP 1975-148218	19751211 <--
PRAI	JP 1975-148218		19751211 <--		

AB A paste of a Ni compound, a conductor, and ≥1 **binder** is

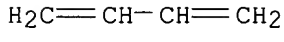
applied on a current-collector core to prepare a Ni **electrode**. The possible **binder** is **butadiene-styrene rubber**, nitrile-**butadiene rubber**, **butadiene rubber**, chloroprene **rubber**, or natural **rubber** latex. Thus, a paste of <100 mesh **Ni**(**OH**)**2** 100, a synthetic-natural (flake) **graphite** mixture 25, 1:1 **butadiene-styrene rubber** latex 3-10, and an additive (**Co** compound, fibers, thickener) 10 parts was filled in a Ni core sheet, dried, rolled, and cured to prepare a Ni **battery electrode**.

IT **9003-55-8**
RL: USES (Uses)
(**rubber, butadiene-styrene**; **binder, electrodes** containing, nickel, **battery**, manufacture of)

RN 9003-55-8 HCAPLUS
CN Benzene, ethenyl-, polymer with 1,3-butadiene (CA INDEX NAME)

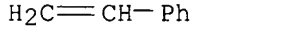
CM 1

CRN 106-99-0
CMF C4 H6



CM 2

CRN 100-42-5
CMF C8 H8



L113 ANSWER 43 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1981:211591 HCAPLUS
DN 94:211591
TI **Hydrogen storage** materials
PA Tokai University, Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 55158101	A	19801209	JP 1979-64645	19790525 <--
	JP 57019041	B	19820420		
PRAI	JP 1979-64645	A	19790525 <--		

AB A thermal conductor-containing mixture is filled into a porous **electrode** substrate. The thermal conductor-containing mixture consists of Cu, Al, and/or **graphite** and a **polymer**. The mixture improves the **H** sorption. Thus, a metal **hydride** secondary **battery** was prepared with a Ni2O3 **cathode**, a **H** -storage material **anode**, and a KOH electrolyte. A mixture of LaNi4Cu [70146-48-4] 65, **graphite** 28, and polyethylene 7% was

sintered, crushed, filled into a porous **Ni** plate, and sintered to prepare the **anode**.

L113 ANSWER 44 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1979:171465 HCAPLUS
DN 90:171465
TI Research and development of the nickel-zinc secondary **battery**. Part I. Study and improvement of the zinc **electrode** shape change in the nickel-zinc **battery**
AU Poa, Shan-Ping; Chiang, Gwei-Ming Chang; Lin, Tai-Chang
CS Inst. Ind. Chem., Natl. Tsing Hua Univ., Hsinchu, Taiwan
SO Kexue Fazhan Yuekan (**1978**), 6(11), 1013-34
CODEN: KHFKDF; ISSN: 0250-1651
DT Journal
LA Chinese
AB The Zn **anode** shape change and its utilization value decrease if the tubular **electrode** construction is used. The Ni-Zn **battery** discharge performance and the **anode** shape change are impaired by addition of V2O5 to the electrolyte. PbO and In2O3 electrolyte additives improve the **battery** discharge performance, but they increase the **anode** shape change. The effect of SnCl2.2H2O or TlNO3 additive to the Zn active material is opposite to that of PbO and In2O3 electrolyte additives. The capacity per unit weight of the nonsintered composite Ni **cathode** is higher than that for the sintered **cathodes**. The optimum mixture composition and processing pressure for nonsintered Ni **electrodes** are **Ni**(**OH**)**2** 50-60, **graphite** 30-40, **Co**(OH)2 10, and a **polymer** (PVC) **binder** 5-7.5% and 900-3200 psia.

L113 ANSWER 45 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1978:566171 HCAPLUS
DN 89:166171
TI Nickel **cathodes** for secondary **batteries**
IN Yamane, Teruo; Yamasaki, Hiroshi; Kumano, Yasuyuki
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

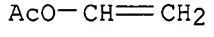
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 53074247	A	19780701	JP 1976-150494	19761214 <--
	JP 59042949	B	19841018		
PRAI	JP 1976-150494	A	19761214 <--		

AB Ni **cathodes** for improving service life of secondary **batteries** are prepared from Ni compds. as active materials, an elec. conducting material, and **binders** such as **ethylene**-vinyl acetate **copolymer** [**24937-78-8**] and **styrene-butadiene copolymer**. Thus, a Ni-Cd storage **battery** having improved service life was prepared with a Ni **cathode** containing **Ni**(**OH**)**2** 70, flaky **graphite** 15, **Co oxide** 5, **polystyrene** latex 2, and **ethylene**-vinyl acetate **copolymer** powder 8%.
IT **24937-78-8**
RL: USES (Uses)
(**binder**, **cathodes** containing, **nickel hydroxide battery**)

RN 24937-78-8 HCAPLUS
CN Acetic acid ethenyl ester, polymer with ethene (9CI) (CA INDEX NAME)

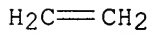
CM 1

CRN 108-05-4
CMF C4 H6 O2

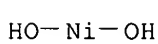


CM 2

CRN 74-85-1
CMF C2 H4



IT **12054-48-7**
RL: USES (Uses)
(**cathodes**, secondary-**battery**)
RN 12054-48-7 HCAPLUS
CN Nickel hydroxide (Ni(OH)2) (8CI, 9CI) (CA INDEX NAME)



L113 ANSWER 46 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1978:549503 HCAPLUS
DN 89:149503
TI **Cathode** plates for alkaline secondary **batteries**
IN Ohhira, Tsukasa; Yamane, Teruo; Yamasaki, Hiroshi
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 53072139	A	19780627	JP 1976-148357	19761209 <--
PRAI JP 1976-148357	A	19761209 <--		

AB A paste containing **Ni-hydroxide** powder, elec. conducting material(s), and **binder**(s) is shaped to **electrode** plates, immersed in an aqueous 3-5% fluorocarbon **polymer** dispersion, and dried. Thus, a paste containing **Ni hydroxide** (-300 mesh) 70, **graphite** 15, **polystyrene** 8, Co3O4 5, and CM-cellulose 2% was applied to Ni-coated, expanded-Fe substrates, dried, pressed, immersed in an aqueous 3% fluorocarbon resin dispersion, dried, and pressed to obtain **cathode** plates. A Ni-Cd storage **battery** made with these **cathode** plates had long discharge cycles and the amount of active materials separated from the **cathode** plates during charging-discharging cycles was 0.5-1, vs. 5% when the plates were prepared without immersion in the aqueous fluorocarbon

polymer dispersion.
IT **1308-06-1**
RL: USES (Uses)
(**cathodes** containing, **nickel hydroxide battery**, fluorocarbon resin-impregnated)
RN 1308-06-1 HCAPLUS
CN Cobalt oxide (Co3O4) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **11113-74-9**
RL: USES (Uses)
(**cathodes**, **cobalt oxide**-containing and fluorocarbon resin-impregnated **battery**)
RN 11113-74-9 HCAPLUS
CN Nickel hydroxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
HO	x	14280-30-9
Ni	x	7440-02-0

L113 ANSWER 47 OF 47 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1978:462464 HCAPLUS
DN 89:62464
TI Nickel **electrodes**
IN Yamasaki, Hiroshi; Yamane, Teruo; Kumano, Yasuyuki
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 52150526	A	19771214	JP 1976-68479	19760610 <--
	JP 60040669	B	19850912		
PRAI	JP 1976-68479	A	19760610 <--		

AB Powdered **Co** or **Co** alloy (0.7-25%) of ≤10 mesh is added to Ni compound-base **electrodes** to improve the **cathode** performance. Thus, a **cathode** was prepared from a mixture of **Ni(OH)2** 100, **graphite** 25, **styrene-butadiene rubber** 5, and <350 mesh **Co** powder 5 parts.
IT **7440-48-4**, uses and miscellaneous
RL: USES (Uses)
(**cathodes** containing, nickel **battery**)
RN 7440-48-4 HCAPLUS
CN Cobalt (CA INDEX NAME)

Co

=> d his

(FILE 'HOME' ENTERED AT 10:54:39 ON 29 JAN 2007)

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                SET COST OFF

     FILE 'HCAPLUS' ENTERED AT 10:54:49 ON 29 JAN 2007
L1             2 S (US20060166101 OR US20030104280 OR US6617072)/PN OR (US2003-6
                 E VENKATESAN/AU
                 E VENKATESAN S/AU
L2           202 S E3-E5,E15-E18
                 E VENKATESAN NAME/AU
                 E SRINIVASAN/AU
L3            33 S E3
                 E SRINIVASAN V/AU
L4           552 S E3-E14
L5             1 S E37
                 E SRINIVASAN N/AU
                 E PRASAD/AU
                 E PRASAD B/AU
L6           871 S E3-E56
                 E PRASAD BINAY/AU
L7             3 S E3
                 E PRASAD N/AU
                 E BINAY/AU
L8             2 S E4
                 E LAMING/AU
L9             3 S E20
                 E ALADJOV/AU
L10           49 S E4,E5
                 E BOYKO/AU
L11           18 S E4-E13
                 E CHEVRON/PA,CS
                 E TEXACO/PA,CS
L12        12982 S (CHEVRON? OR TEXACO?)/PA,CS
                 SEL RN L1

     FILE 'REGISTRY' ENTERED AT 11:01:01 ON 29 JAN 2007
L13           10 S E1-E10
L14            2 S L13 AND NI/ELS
                 E NICKEL HYDROXIDE/CN
L15            2 S E3
L16            2 S E7,E8
L17           11 S E21-E31
L18           14 S L14-L17
L19         2129 S (NI/ELS OR ?NICKEL?/CNS OR 7440-02-0/CRN) AND (HYDROXIDE OR 1
L20           46 S L19 AND 3/ELC.SUB
L21           31 S L20 NOT ((D OR T)/ELS OR H2O)
L22           18 S L21 NOT 17778-80-2/CRN
L23           15 S L22 NOT (HYDRIDE OR CCS/CI)
L24           13 S L23 NOT OXIDE
L25            5 S L22 NOT L24
L26            2 S L13 AND CO/ELS
L27           68 S CO/MF NOT MASS
L28           40 S L27 NOT CARBON(L)MONOXIDE
L29           29 S L28 AND 1/ELC.SUB
                 E COO/MF
L30            7 S E3
                 E COBALT OXIDE/CN
L31            2 S E3
L32           31 S L26,L29,L31
L33            1 S GRAPHITE/CN
L34            5 S L13 NOT L24,L32,L33
L35            4 S L34 NOT ETHENOL
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L36        5239 S 100-42-5/CRN AND 106-99-0/CRN
L37          25 S L36 AND 2/NC
L38          19 S L37 NOT MAN/CI
L39          84 S L36 AND 74-85-1/CRN
L40           7 S L39 AND 3/NC NOT MAN/CI
L41         662 S 100-42-5/CRN AND 78-79-5/CRN
L42          19 S L41 AND 2/NC NOT MAN/CI
L43          45 S L35,L38,L40,L42

     FILE 'HCAPLUS' ENTERED AT 11:13:31 ON 29 JAN 2007
L44        6167 S L24
L45        9636 S (NICKEL OR NI)()(HYDROXIDE OR OH 2 OR OH2 OR OH 3 OR OH3 OR O
L46         359 S (NICKEL OR NI)()DIHYDROXIDE
L47          92 S NICKELOUS HYDROXIDE
L48        8191 S (NI OR NICKEL)(1W)HYDROXIDE
L49       10477 S L44-L48
L50         289 S L49 AND L33
L51         508 S L49 AND GRAPHITE
L52         515 S L50,L51
L53          83 S L52 AND L32
L54         212 S L52 AND (CO OR COBALT OR (CO OR COBALT)()OXIDE)
L55           5 S L52 AND COBALTOUS OXIDE
L56         214 S L53-L55
L57          11 S L56 AND L43
L58          26 S L56 AND ?POLYM?(L)BIND?
L59           1 S L56 AND ?ELASTOMER?
L60          14 S L56 AND RUBBER?
L61          35 S L57-L60
L62           1 S L61 AND PY<=2001 NOT P/DT
L63          25 S L61 AND (PD<=20021128 OR PRD<=20011128 OR AD<=20011128) AND P
L64           2 S L1-L12 AND L61
L65          27 S L62-L64
L66           8 S L61 NOT L65
L67          27 S L65 AND (BATTERY OR CATHOD? OR ANOD? OR ELECTROD?)
L68           3 S L65 AND (PRIMARY OR SECONDAR)
L69          27 S L67,L68
L70           2 S L67 AND FUEL CELL
L71          27 S L69,L70
L72        7472 S (NICKEL OR NI)(L)HYDRIDE
L73        2970 S L72 AND (BATTERY OR FUEL CELL OR CATHOD? OR ANOD? OR ELECTROD
L74         113 S L73 AND (L33 OR GRAPHITE OR CARBON?/CW,CT)
L75          34 S L74 AND HYDROGEN?(L)STORAGE
L76          34 S L74 AND HYDROGEN?(L)STOR?
L77          34 S L75,L76
L78          13 S L77 AND (PD<=20021128 OR PRD<=20011128 OR AD<=20011128) AND P
L79           8 S L77 AND PY<=2001 NOT P/DT
L80          21 S L78,L79
L81          20 S L80 NOT L71
L82          20 S L81 AND HYDRIDE
L83          20 S L82 AND (NI OR ?NICKEL? OR ?HYDROGEN? OR H2 OR H)
L84          19 S L83 AND ALLOY
L85           1 S L83 NOT L84
L86          47 S L83-L84,L71
L87          47 S L86 AND L1-L12,L44-L86
L88          35 S L87 AND L24,L32,L33,L43
L89          34 S L87 AND ?POLYM?
L90          19 S L88 AND BIND?
L91          22 S L88 AND (?STYREN? OR ?BUTADIEN? OR ?ISOPREN? OR ?ETHYLENE?)
L92           9 S L88 AND (?RUBBER? OR ?ELASTOMER?)
L93           4 S L87 NOT L88-L92
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L94          47 S L87-L93

     FILE 'REGISTRY' ENTERED AT 11:26:21 ON 29 JAN 2007

     FILE 'HCAPLUS' ENTERED AT 11:26:21 ON 29 JAN 2007
L95             TRA L94 1- RN :      228 TERMS

     FILE 'REGISTRY' ENTERED AT 11:26:23 ON 29 JAN 2007
L96          228 SEA L95
L97            2 S L96 AND L24
L98           38 S L96 AND (L32 OR CO/ELS)
L99            1 S L96 AND L33
L100           5 S L96 AND L43
L101         182 S L96 NOT L97-L100
L102          12 S L101 AND (C4H6 OR C2H4 OR H2 OR C8H8)
L103           9 S L102 NOT (C2H4O OR C3H3N OR HNO3)
L104          33 S L101 AND NI/ELS
L105           3 S L104 AND L19
L106          30 S L104 NOT L105
L107          14 S L106 AND O/ELS
L108          11 S L107 NOT (H2O4S OR HNO3 OR C2H4O2)
L109           9 S L108 NOT FE/ELS
L110           7 S L109 NOT (ZR OR PD)/ELS
L111          65 S L97,L98,L99,L100,L103,L105,L110

     FILE 'HCAPLUS' ENTERED AT 11:35:56 ON 29 JAN 2007
L112          41 S L111 AND L94
L113          47 S L94,L112

     FILE 'HCAPLUS' ENTERED AT 11:36:23 ON 29 JAN 2007

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